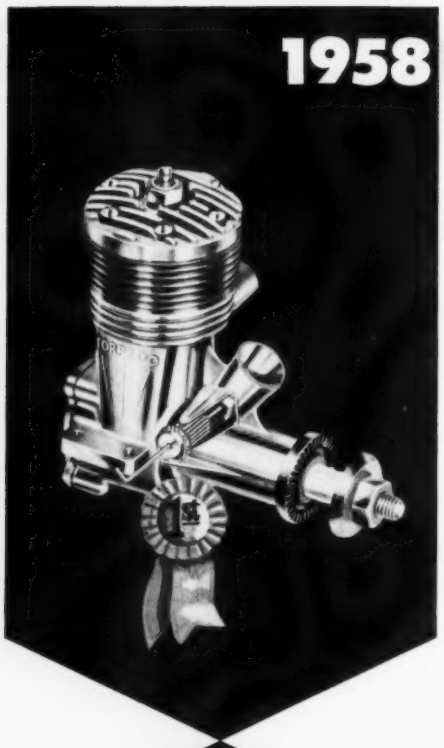
MODEL AIRPLANE NEWS

March 1959—35 cents

IN THIS ISSUE

THE RYAN PT-22
ELECTRA SOLID
FAI REPORT '59 . . .
Spirit of St. Louis
Towline Glider
Radio Control News

Curtiss Condor



1958 NATIONALS WINNER

TORPEDO ENGINES • LED THE FIELD IN THE NUMBER OF **FIRST PLACES**

TORPEDO ENGINES • LED THE FIELD IN THE NUMBER OF **SECOND PLACES**

TORPEDO ENGINES • LED THE FIELD IN THE NUMBER OF **THIRD PLACES**

	Torpedo	Engine "A"	Engine "B"	Engine "C"	Engine "D"	Engine "E"	Engine "F"
FIRSTS	14	9	6	4	2	1	1
SECONDS	16	6	6	3	4	6	0
THIRDS	12	10	8	2	2	2	1
TOTAL IN TOP 3*	42	25	20	9	8	9	2

For the NINTH CONSECUTIVE YEAR, TORPEDO ENGINES led the Nationals, by winning **more first places** than **any other** engine. Surely this consistency is definite proof that Torpedo engines are the champions! There is a Torpedo engine for every type of flying—and each a champion—so power your next model with the engine that does everything other engines **claim to do!**

FIRST PLACE WINNERS

Niki Burt, New Orleans, La.
Strether Smith, Ithaca, N. Y.
Vic Cunnyngham, Baldwin Park, Calif.
Dick Lindy, Cuyahoga Falls, Ohio
Charles E. Diller, Riverside, Calif.
Bill Hunter (2), Sun Valley, Calif.
David Edmonson, Minneapolis, Minn.
Gary Duncan, Van Nuys, Calif.
Ray LaHood, Omaha, Nebr.
Charles Gilliland, Tulsa, Okla.
Richard Taylor, McCoy AFB, Fla.
Bob Dunham, Norwalk, Calif.
Team: Morton & Grogan, Dallas, Texas

SECOND PLACE WINNERS

Edward Pilkington, Hialeah, Fla.
Herbert Swansen, De Plaines, Ill.
Michael Burke, Louisville, Ky.
Charles E. Reck, Danville, Ill.
C. O. Schuchmann, Belleville, Ill.
Arnold L. Nelson, Long Beach, Calif.
Frank Parmenter, Hampton, Va.
Charles Robert, Flint, Mich.
Howard Bonner, Los Angeles, Calif.
Robert Wischer, Delafield, Wis.
Duane Kaasa, Seattle, Wash.
Joe Thompson, Milwaukee, Wis.
Ruby Kuiber, Cleveland, Ohio
C. O. Wright, Topeka, Kan.
Ralph N. Jackson, Vestal, N. Y.
Lawrence H. Conover, Cedar Rapids, Iowa

THIRD PLACE WINNERS

Don Hoyer, Dayton, Ohio
Larry Miller, Cleveland, Ohio
Vic Cunnyngham, Baldwin Park, Calif.
John E. Revello, Dearborn, Mich.
Bill Wisnieski, Lakewood, Calif.
Ken McClenahan, Englewood, Colo.
Gerald Ritz, Des Plaines, Ill.
Howard T. Bonner, Los Angeles, Calif.
Tommy Stinson, Ruston, La.
Ronnie Schuler, Canton, Ohio
Bill Deans, Downey, Calif.
Richard Tremps, Anderson, Ind.

SUPERSONIC FUEL AGAIN LED THE NATIONALS BY WINNING MORE FIRST PLACES THAN ANY OTHER TWO NAME BRANDS COMBINED

	Supersonic	"Fuel" "A"	"Fuel" "B"	"Fuel" "C"	"Fuel" "D"	"Fuel" "E"	"Fuel" "F"
FIRSTS	14	7	6	5	5	2	0
SECONDS	7	1	12	7	3	3	9
THIRDS	12	3	4	6	1	3	5
TOTAL IN TOP 3*	33	11	22	18	9	8	14

SUPERSONIC . . . the "WINNINGEST" Fuel of them all! For the best performance—in all types of flying—be sure to use SUPERSONIC, the proven fuel!

FIRST PLACE WINNERS

Gary Duncan, Van Nuys, Calif.
Charles Gilliland, Tulsa, Okla.
David Edmonson, Minneapolis, Minn.
Max Boal, Kansas City, Mo.
Ray LaHood, Omaha, Nebr.
Ed Christenson (2), Lawrence, Kans.
Karl Spielmaker, Grand Rapids, Mich.
Tom Dean, Corpus Christi, Tex.
Charles E. Diller, Riverside, Calif.
Vic Cunnyngham, Baldwin Park, Calif.
Bob Dunham, Norwalk, Calif.
Ed Miller (2), Armona, Calif.

SECOND PLACE WINNERS

Lewis McFarland, N. Charleston, S. C.
Bob Sutton, Phoenix, Ariz.
C. O. Wright, Topeka, Kans.
Charles Robert, Flint, Mich.
Harold F. DeBolt, Williamsville, N. Y.
Burt Ballentine, N. Hollywood, Calif.
Howard Bonner, Los Angeles, Calif.

THIRD PLACE WINNERS

Tommy Stinson, Ruston, La.
Robert O. Hayes, Flint, Mich.
Richard Tremps, Anderson, Ind.
Bill Deans, Downey, Calif.
Donald Stevens, Lemay, Mo.
Ronnie Schuler, Canton, Ohio
Frank Parmenter, Hampton, Va.
John E. Revello, Dearborn, Mich.
Ed Christenson, Lawrence, Kan.
Vic Cunnyngham, Baldwin Park, Calif.
C. O. Wright, Topeka, Kan.
Howard T. Bonner, Los Angeles, Calif.

PLUS 2 FIRSTS with the FURY. 049 Deluxe

First Place Winner in Free Flight Flying Scale in the last two Nationals.

First Place Winner in ½A speed in two out of three of the last three Nationals.

K&B Allyn

K & B ALLYN CO. • 5732 DUARTE ST. • LOS ANGELES 58, CALIF.

For Building Better Models —in the

Supersonic Era

COMET

Comet

CEMENTS, PAINTS and DOPE

do a better job in less time at lower cost

10c 15c 25c

—that's why they SELL!

for PLASTICS

COMET CEMENT for PLASTICS
Generous tubes 10c and 25c

COMET PAINTS for PLASTICS

Dries to the touch in 5 minutes—thoroughly dry in 20 minutes! Big individual 22cc. bottles 10c

Choice of 14 Sparkling Colors

- Dark Blue
- Red
- Orange
- Yellow
- Green
- Sky Blue
- White
- Jet Black
- Gray
- Silver
- Chocolate Brown
- Olive Drab
- Rich Gold
- Thinner

"Set of Seven"

7 big 22cc. bottles, including cement, in handy container. Only 69c

for BALSA

COMET REGULAR CEMENT
Generous tube 10c. Also Giant 15c and 25c Tubes.

EXTRA-FAST DRYING CEMENT
Generous-size 10c tube. Also Giant 25c Tube.

COMET DOPE Big 22cc. bottles. 10c

A Full Range of Brilliant, Up-To-The Minute Colors

- INSIGNIA BLUE
- INSIGNIA RED
- AERONCA ORANGE
- TAYLORCRAFT YELLOW
- STINSON GREEN
- HORIZON BLUE
- INSIGNIA WHITE
- JET BLACK
- BATTLESHIP GRAY
- REGAL MAROON
- RICH GOLD
- SILVER
- AIRCRAFT CREAM
- GLOSS TOP COAT
- SANDING SEALER
- THINNER
- CLEAR
- CHOCOLATE BROWN
- OLIVE DRAB

COMET "HOT-FUEL" PROOFER Big bottle . . . 25c

Send for these 2 BIG COMET BOOKS:
The New Comet Catalog—25c; shows hundreds of models in color. 20-Page Book—"What Makes An Airplane Fly"—lots of pictures and diagrams—printed in 2 colors—25c.

COMET MODEL HOBBYCRAFT, INC. 501 W. 35th St., Chicago 16, Ill.

The Amazing RX-1

ANOTHER FIRST FROM CharlieCG

ONE UNIT READY TO FLY

- NO WIRING
- NO SOLDERING

The RX-1 was designed for both the beginner and the old timer R/C fan. It is the ultimate in simplicity and reliability requiring no electrical installation. Receiver is complete in every detail including escapement and tuning. Only 3 volts required. Place 2 pen cells in holder and off you go into the wild blue yonder. Nothing more to buy. Size 2½" x 3" x 2¼". Fits into ½A model. Weight 4 oz. with batteries. Uses no relay for the ultimate in reliability. Only $34.95 less batteries.

$34.95

For free illustrated catalog write Dept. MA-3.

CG Electronics CORPORATION

Dept. MA-3

15000 Central Avenue, SE Albuquerque, New Mexico

NYLON PROPELLERS

Safe? . . . at any RPM of today's engines! Tornado NYLON Propellers are almost unbreakable . . . even in ground loops and belly landings.

Rigid Enough? Yes . . . holds shape and top efficiency even under strain of "maneuvers!"

Flexibility? . . . greater than wood.

FUEL PROOF Chemically inert to all special and standard fuels.

WEATHER? Hot?. summer heat cannot soften.

Cold? not brittle at sub-zero.

SMART COLORS Just dip in any boiling type Nylon dye. *Beautiful. Bright. Permanent*

2 Blade Tractor	
5-3 5-4 5½-3	
5½-4 6-3 6-4	25c
7-4 7-6	40c
8-4 8-6 8-8	60c
9-4 9-6 9-7	
9-8 10-4 10-6	85c
11-4 11-6	$1
2 Blade Pusher	
5½-3 5½-4	
6-3 6-4	25c
8-6	85c
9-6 10-6	$1
3 Blade Tractor	
5-3 5-4 6-3 6-4	50c
3 Blade Pusher	
6-3	50c

GRISH BROS. St. John Indiana

MORE THRUST from ENGINE TORQUE

4 NEW RADIO BOOKS

"RADIO CONTROL OF MODEL AIRCRAFT"
BY G. SOMMERHOFF

New, Fully Revised R/C Book above. Over 120 pages up to date circuits. Complete Drawings & Instructions for Hard & Soft tube, plus Transistor Receivers. Transmitters of proven designs. All NEW material not previously published. Many of the Author's Actuators etc. are Patented. (Permission is given by Author for those that wish to make these units) Rudder only, and complex Rudder, Elevator, Aileron controls included. Trouble shooting ideas are given for those owning factory equipment or those working from kits.

Radio Control Model Aircraft 3.98 ☐

OTHER RADIO BOOKS

Radio Control of Model Aircraft	$3.98 ☐
Radio Control of Model Ships, Boats and Aircraft	$3.98 ☐
Simple Radio Control	$2.98 ☐
Radio Control Models	$2.98 ☐

SPECIAL All 4 Radio Control Books as listed above a $13.92 value. All 4 **$9.98** ☐

PLANSBOOK $1.00 ☐ Over 1,500 plans

$1.00 Credit Voucher Free with Plansbook.

Check off order above. Add 25c postage per book. — Print your name and address in column this ad

GULL MODEL AIRPLANE CO., 10 EAST OVERLEA AVE., DEPT. M BALTIMORE 6, MD.

P. G. F. CHINN

Foreign Notes

GREAT BRITAIN

On November 22, the Society of Model Aeronautical Engineers, Britain's equivalent of the AMA, held its annual prizegiving dinner. At most SMAE contests, prizes are not awarded on the spot and are, instead presented at this social gathering each year at the end of the contest season. Once again, John O'Donnell was declared National Champion—this time for the sixth year running, a performance which even out-Woody's, Woody Blanchard. O'Donnell won the Astral Trophy and Sir John Shelley Cup (F/F gas), the Short Cup (PAA Load), the Caton Trophy (rubber), the KMAA Cup (glider), the Jetex Trophy (Jetex F/F) and the Arthur Mullett Memorial Trophy sportsmanship award.

Among other notable winners, Dick Edmonds was declared World Team-Race Champion, by virtue of his performance at the Brussels Internationals, and Scotland received the United Kingdom Challenge Trophy. Most successful club was the Coventry MAC, which won the Club Championship, Plugge Cup and Keil Trophy. Total SMAE membership at the present time is approximately 800 modelers.

We have now had the opportunity of testing the Taplin .42 cu. in. vertical, alternate-firing, twin-cylinder Diesel mentioned in last column and George Honnest-Redlich, noted British R/C expert, has flown one in a Smog-Hog. The engine handles very well, turning a 13/6 prop and idling very evenly, via its excellent barrel-type throttle, with good full-power pick-up. Although rather heavy (approx. 1 lb.), the Taplin is much smoother than any single-cylinder large Diesel and, aided by an exhaust manifold (standard fitting) and extended exhaust pipe, is very much quieter than the usual glow .35.

The Taplin is now in full production. Before the coming flying season begins, it will be joined by another British two-cylinder motor, the D-C (Davies-Charlton) .29 Twin. This however, is entirely different from the Taplin. It is glow plug instead of diesel, has horizontally-opposed cylinders instead of the inline layout and, of course, is simultaneous firing. It has shaft-valve induction, rather than cylinder induction, and plain, instead of ball bearings. Unlike the Taplin, which uses a two-piece shaft and normal conrods, the D-C has rods with split big-ends on a one-piece shaft. Throttling is via a simple sliding gate type exhaust baffle only.

Yet another new British engine of considerable interest is the Eta Mark 6. This is the latest version of the Eta .29 racing glow motor which, like the Dooling and McCoy, made a welcome reappearance a year or two ago. Basically similar to last year's Mark 5, the new Mark 6 Eta has a new cylinder sleeve and head redesigned to resist distortion, and is claimed to have produced 0.81 bhp at 17,000 rpm (using 40 percent nitro) during makers' tests, a figure which should put it well into the Dooling .29 and Fox .29R/.29X class.

RUMANIA

In 1957, a Rumanian modeler, Moldovearm, won the (so-called) European Free-Flight Power Championships, which were held in Moscow, eight countries competing.

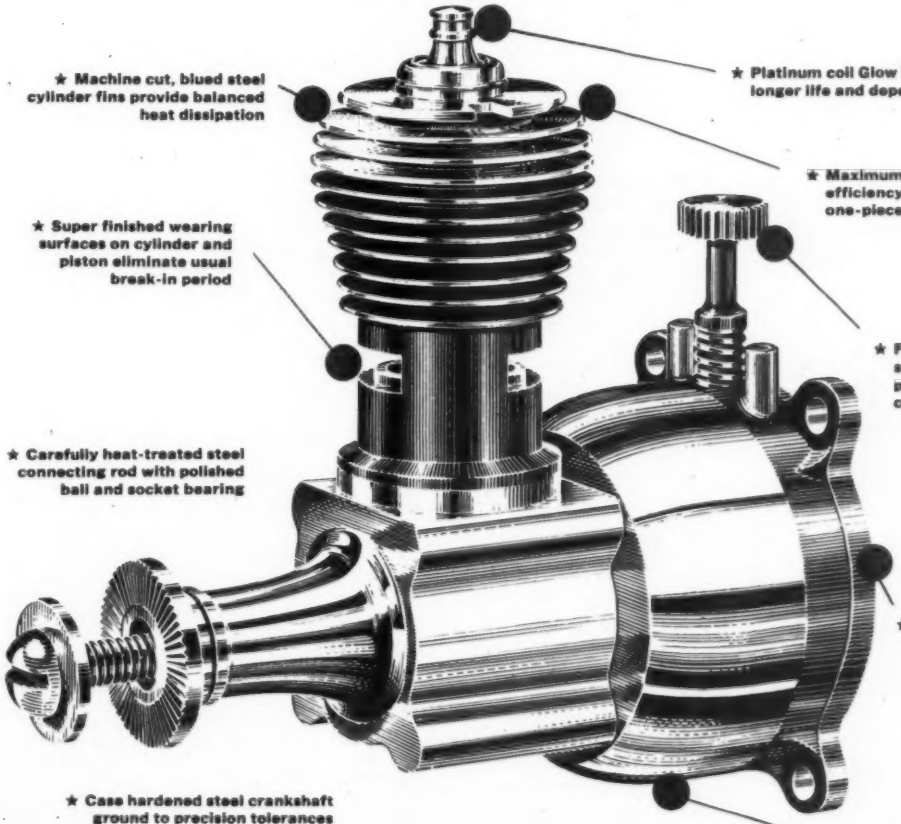
(*Continued on page* 54)

PRECISION STANDARDS — PERFORMANCE FEATURES

UNMATCHED BY ENGINES OF ANY CLASS OR PRICE

Thimble-Drome

UNDISPUTED LEADER OF ½A



★ Machine cut, blued steel cylinder fins provide balanced heat dissipation

★ Platinum coil Glow Head for longer life and dependability

★ Maximum combustion chamber efficiency derived from clean one-piece Glow Head assembly

★ Super finished wearing surfaces on cylinder and piston eliminate usual break-in period

★ Finely threaded needle valve safely located away from propeller assures precise carburetor adjustments

★ Carefully heat-treated steel connecting rod with polished ball and socket bearing

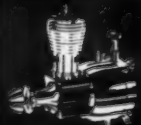
★ Carburetor integral with fuel tank. No outside fuel lines required.

★ Case hardened steel crankshaft ground to precision tolerances

★ Copper reed valve guarantees easy starting plus top RPM

***PRECISION** within millionths of an inch resulting in quicker starting, smoother performance, peak power, longer life! Choice of engines designed for sport-stunt and/or contest work.*

Golden Bee .049



Golden anodized 24 carat quality and performance! Stepped-up 1/2A power. Oversized stunt tank.

$4.98

Babe Bee .049

World's most popular 1/2A engine. Instant starting, powerful action. For Free Flight or Control.

$3.98

Pee Wee .020

Weighs only 21 grams, yet more power per gram than any larger engine. Does practical work up to 22,000 RPM!

$3.98

RR1 .049

Rear Rotary Valve engine that delivers very high stutter-free ½A power. **Extremely flat** peak power curve!

$5.98

L. M. COX MANUFACTURING CO., INC., P. O. BOX 476, SANTA ANA, CALIFORNIA
Folder of T-D Models and Engines on Request

30th Year of Publication

MODEL AIRPLANE NEWS

JAY P. CLEVELAND, President and Publisher

March 1959 — Vol. LX, No. 3

CONTENTS

CONSTRUCTION

Ryan PT-22 12
The Snipe 16
Solid Electra 21

ARTICLES

The Los Angeles Story 9
The Danbury Story 11
Dawn to Dusk 15
FAI Report 20
Let a Servo Do It 24

FEATURES

Foreign Notes 2
MAN at Work 4
Men and Ships 18
Spirit of St. Louis 26
Radio Control News 28
The Los Angeles—Nye 30
Bulletin Board 34
New Look in Batteries 35

WILLIAM WINTER, Editor

WITTICH HOLLOWAY, Art Director

Contributing Editors: Peter Chinn (England), Don Grout, Ed Lorenz, Ted Martin, Bruce Wennerstrom, Harry Williamson

Executive and Editorial Office: 551 Fifth Avenue, New York 17, N. Y.

Advertising Manager, N. E. Slane, 551 5th Ave. New York 17; West Coast Adv. Mgr., Justin Hannon, 4708 Crenshaw Blvd. Los Angeles 43, Calif.

Published Monthly by Air Age, Inc. Editorial and Business Offices: 551 Fifth Ave., New York 17, N.Y. Jay P. Cleveland, President; Y. P. Johnson, Vice Pres.; Louis V. DeFrancesco, Treas.; G. E. DeFrancesco, Sec. Second Class Postage paid at Columbia, Missouri. Additional Second Class Entry at New York, N.Y.

Copyright 1958 by Air Age, Inc.
Printed in U. S. A.

by William Winter

► With the growing influence of FAI rules on our own AMA regulations—witness the 173 ounce power loading now applicable in free flight, we may wonder if someday modelers of all nations will compete under truly universal rules. Consider the origin of the great basic events.

Justly, the most famous is the Wakefield for rubber-powered models, the oldest of all international events. During the twenties, Lord Wakefield in England, awarded this wonderful trophy to foster international competition. Rubber models were not unique to Britain, but England gave lasting focus to worldwide competitive modeling. The Wakefield takes precedence over everything but it no longer is an English controlled event. Its direction now is truly international and the Englishman, like the American, or the Russian or Chinese, must co-operate with changes wrought by a conclave of Belgians, French, Italians, and many small nations who attend and sway International rules conferences.

The great Nordic event came out of Scandinavia, quickly became the common property of the Continent. In full scale or models, gliders always have been a big thing in Europe. Shortages of materials, of rubber, and especially miniature engines, particularly in the past, raised tow-line in Europe to the level of free flight in pre-war USA. European superiority in the ways of the soaring gliders has been so great that other nations for the most part have maintained an interesting hands-off attitude toward the Nordic or A-2 rules.

After Bill Brown "invented" the gas motor in 1931, threw a scare into the rubber-model experts at Atlantic City in that year, and wiped Roosevelt Field with the hapless rubber men, at the 1932 MAN-sponsored Nationals, the USA evolved rules over the following 15 years that have influenced competition in dozens of countries to this day. Yet we showed no glimmer of interest in FAI gas free flight until the 1950's. So, while the US ran through spark-ignition, then glow, the rest of the world went Diesel and, for economic and other practical considerations, favored the small motor. Internationally, a .15 was a key motor, whereas American ran up to .60's and bigger, and gradually down again.

Jim Walker demonstrated U-control in 1940. (*Continued on page 66*)

NEXT MONTH'S COVER Kohler and D-5A

SUBSCRIPTION PRICES

U.S. & POSSESSIONS: 1 year $3.50; 2 years $5.50; 3 years $7.50
CANADA: 1 year $4.00; ALL OTHER COUNTRIES: 1 year $5.00.
Payment from all countries except Canada must be in U.S. Funds.

CHANGE OF ADDRESS—Send to MODEL AIRPLANE NEWS, SUBSCRIPTION DEPT., 551 FIFTH AVENUE, NEW YORK 17, N.Y. at least one month before the date of the issue with which it is to take effect. Send old address with the new, enclosing if possible your address label or copy. The Post Office will not forward copies unless you provide extra postage. Duplicate issues cannot be sent.

PLANE ON THE COVER

Twenty-five years ago, the Curtiss Condor biplane airliner, carried only 15 passengers despite an 82-foot wing and two 750-hp Wright Cyclones. As a sleeper, six compartments accommodated 12. Range was 716 miles, but cruise, not bad for the time, was 167 mph. In blue and red, American Airlines.

LOOK! LOOK! LOOK!

it's the famous . . .

OK CUB .049A

now only $3.95

***Complete with* FUEL-VUE NYLON TANK**
HIGH IMPACT PROPELLER • SPIN STARTER

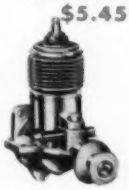
Yes! Here is the engine value of the year. It's the genuine OK Cub .049A engine at a never before heard of price. Our new attractive package saves you money. No need now for you to have any engine but the best. Ideal for both free and control line flight. Here are just a few of the exclusive OK features:

● **Special Bearing Quality Die Cast Crankcase** ● **Hardened Aircraft Steel Crankshaft** ● **Fuel-vue Nylon Tank** ● **Patented 360° Porting** ● **Replaceable Glow Plug**

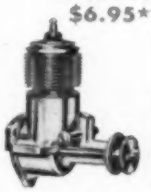
NEW LOW PRICES — BETTER VALUES THAN EVER ★ ★ ★

"OK" CUB .049B Power Kit **$3.95**

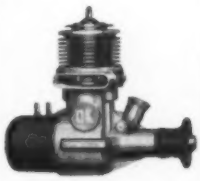
"OK" CUB .049B **$4.95**



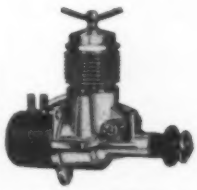
"OK" CUB .074 **$5.45***
"OK" CUB .099 **$5.95***



"OK" CUB .14 **$6.95***
"OK" CUB .19 **$7.95**



"OK" CUB .29 **$11.95**
"OK" CUB .35 **$12.95**



"OK" CUB DIESELS
.049 **$6.95**
.075 **$7.95**

OK GLOW FUEL

Specifically developed to give maximum life and performance with all OK engines (and other engines of similar compression ratios), OK Glow Fuel is a scientifically compounded methanol-base fuel, heavily fortified with nitrates. High heat resistant silicone lubricants won't thin under engine heat.

50c ½ PT. **85c** PT. **$1.50** QT.

OK Diesel Fuel for CUB Diesels . . Pint 85¢

OK GLOW PLUGS

"OK" Glow Plugs have a superior platinum glow element for fast starts, ease of acceleration, highest speed. Available in two sizes.
G-2 for Cubs 19, 29, 35 and all other makes using 1/4-32 long type plugs.
G-3 for all Cubs .039 to .14 and all other makes using 1/4-32 short type plug.

59¢

OK ACCESSORY SET

Just the right fuel . . . just the right accessories for satisfactory engine operation! Contains:

- ½ pint OK Glow Fuel
- 1 filler spout with tubing
- 1 set battery leads assembled, soldered; battery connection and glow plug clip
- 1 comb. plug wrench and screw driver

$1.39

HERKIMER TOOL & MODEL WORKS, INC.
82 HARTER STREET HERKIMER, NEW YORK

SHOP and SAVE at AHC

BIGGER BARGAINS . . . BIGGER SELECTIONS

IF YOU DON'T SEE IT . . .
Remember . . . These Pages List Only a Fraction of Our 25,000 Items. Write and AHC will Supply!

Howard Ike 18" .049 to .099 — 1.95
Infant Wagon 20" .049 to .074 — 2.50
Jetster 30" .19 to .29 — 3.50
Jubilee 40" .19 to .35 — 4.50
Junior Puddlejumper 19" AA — 1.95
Key-Dot 18" AA-A 2.95 29" B-C — 5.95
Kingpin 14" .020 to .049 — 1.69
Knight 36" .19 to .36 — 3.95
Lancer 40" .19 to .35 — 3.50
Lil Darlin 16" .039 to .074 — 2.50
Lil Duper Zilch 42" A-B — 4.95
Lil Omega Stunter .049 to .099 — 2.50
Lil Raider 22" .049 — 2.95
Lil Half Fast 21" .049 - .074 — 1.95
Lion Tamer 42" B-C — 3.95

Scout 24" .049 to .074 — 2.95
SE5 14" 2.95 32" .29 to .49 — 6.95
Shoestring 20" A-B-C — 5.95
Shrike A-12 - 33" .09 to .19 — 5.95
Smoothie 52" A-B — 7.95
Snapper ½A 24" - .049 — 2.75
Snark Missile 22" .049 to .09 — 2.95
S.P.A.D. 14½" .020 to .049 — 1.50
Sport Racer 18" .020 to .074 — 1.69
Sportwing 36" .19 to .35 — 4.95
Squaw 39" .19 to .36 — 5.95
Starfire F94C 18" .049 to .074 — 1.95
Stearman 14" AA — 2.95
Stinson Reliant 18" .035 to .074 — 2.50

Livewire Super Cub 56" .15 - .19 — 13.95
Luscombe Sedan 76" C-D — 9.95
Mambo Trainer 48" .049 to .099 — 6.95
Miss Tiny 46" .049 to .074 — 5.95
Monocoupe 64" .19 to .45 — 12.95
Navion Super 260 - .29-.65 — 15.95
Piper Cub J3 71" A-B — 9.95
Piper Tripacer 44" AA-A — 5.95
Piper Tripacer 37" Plast. .049 — 9.95
Piper Tri-Pacer 58" A-B-C — 12.95
Royal Rudderbug 62" A — 6.95
Sea Cat 68" .15 - .25 — 8.95
Sioux 36" .039 to .074 — 3.25
Smog Hog 72" .29 to .35 — 27.95
Spirit 54" .09 to .23 — 10.95

Tornado Nylon: 5½ or 6", 3-4p — .25
9" or 10", 4-6 p — .05
Tornado: 10" D 3-5-6p — .30
5", 6" or 7" D 3-4-5-6-8 P — .20
8" or 9" D 3-4-5-6 P — .25
Merco Butyrate: 11" - 4p — .45
9" or 10", 4, 6p — .45
Keysun plastic 5/3, 5½/2½, 5½/4, 6/3, 6/4, 6/5, - .15c; 7/3, 7/4, 7/5 — .20
Top-Flite—6" in 3,4,5p—20c; 7" in 3,4, 6p; 8" in 3½, 5,6,8p; 9" in 4,5,6,7, 8p; 10" in 3½, 5, 6, 8, 12p—25c; 11" in 4,6,8,10,12p; 12" in 5,8p; 13" 5½p: each .30 . . . AND ALL OTHERS!
TopFlite (Plas.) 5¼" or 6" - 3,4P — .15

Trexler Pneu. (pr) 1¼" or 1½" — .40
1¾", 2"—50c; 2¼", 2½"—60c
2¾" 1.00; 3" 1.25; 3½" 1.50
Pneu. Veco 3½" - 4.95 4½" — 5.45
Wheel Collars (Retainers) pr. — .20

PRICES SLASHED

WET CELL STORAGE BATTERIES
Brand New! Finest made for R/C. No Surplus or Junk Parts. High Capacity & Long Life! We guarantee 'em 100%.

2V-3A — 1.29 | 2V-8A — 3.75
2V-6A — 2.29 | W/CASE — 2.75
2V-12A — 5.75 | 6V-4A — 3.29
Comb. 2V-6V — 7.95
Baby Wet - 4 Volt 1.5A — 1.45
WET CELL CHARGER
$7.95 val. Asmbld. Rdy-to-use $5.95

ENGINES

GLO ENGINES
Babe Bee .049 — 3.95
Cameron Ring or Lapped .19 — 9.95
Cameron .19 two speed (A) — 11.95
Dooling .29 — 23.95
Firerak'r .068 "Thrt'l Ctl." — 8.95
Less Throttle Control — 7.95
Fox .15 6.95 .19 or .25 ea. — 14.50
2 Speed 18.50 Exhaust Valve — 24.95
Fox .29 or .35 15.95 2 Speed — 18.45
Fox .35 Combat Special — 19.95
Golden Bee .049 — 4.95
Johnson-Beam or Red. Mt.- .29 — 14.95
.32-15.49 .35 or .35 Stunt — 15.95
K & B .099 — 9.95
K & B Glo Torp. 29R or 35 ea. — 15.95
K & B Torpedo 19 or 23 ea. — 13.95
K & B 2 Speed .15 11.95; .19 — 16.95
K&B Torpedo .15 10.95 .295 — 15.95
K&B .19 R/C 19.95 .35 R/C — 22.95
McCoy .049 3.95 .099 — 7.95
McCoy .19, .29 or .35 Red Head ea. — 10.00
McCoy .60 — 40.00
O & R .049 Mite 4.95 W/Starter — 5.95
O&R .049 Midget 5.95 W/Starter — 6.95
O.K. Cub .049A Combo Package — 3.95
O.K. Cub .049B Kit 3.95 Asmbld. — 4.95
O.K. Cub .049S w/starter — 6.95
O.K. Cub .074 5.45 Pkge. — 6.25
O.K. Cub .099 5.95 Pkge. — 6.75
O.K. Cub .14 or .19 ea. — 6.95
O.K. Cub .29 — 11.95; .35 — 12.95
Pee Wee .020 Space Bug — 3.95
R.R. #1 .049 — 5.95
"Signature" Super Shrek .049 — 5.95
Sky Fury .049 5.95 Deluxe — 6.95
Sky Fury .074 — 6.95
Sky Fury Twin .099-9.95; .15 — 11.95
Space Bug 6.95; .049 Jr. — 4.95
Spitfire .65 Lap 30.00 Ring — 28.00

ENGINE TRADE IN SERVICE

We meet all competition! If anyone advertises a higher trade-in allowance in this issue, clip the ad and send it to our N.Y. office with your order. BONUS ITEMS INCLUDED AT NO EXTRA CHARGE. Your old engine is worth 25% of the amount of your purchase. Only 1 engine accepted per order.

McCoy .29; R.H. Restrictor — .35
.09 to .36 HiSpeed Ndl. Valve — .50
Thermal Hopper Rad. Mount — .75
K & B Radial Mt. .19, .23, .29 — 1.00
Cub .099 Mtg. Bracket — .75
Go-Jets (give size of engine) — .85
Vibrator Coil (Jet) — 7.95
Flutter Valve (Tigerjet or Dyna) — .80
Metering Jet (Dyna) 2-3-4-5-6-7 — .75

AIRPLANES

U-CONTROL PLANES
Aero Comdr. 33" (2) .049 to .099 — 10.95
Air Champ 18" .049 to .099 — 2.95
All Amer. Stunt 36" .19 to .29 — 6.95
All Amer. Sr. Stunt 51" .29-.35 — 7.95
American Boy 18" .020 to .074 — 1.29
Arrowjet 24"—.049 to .074 — 2.50
Atomic 18" .039 to .074 — 1.95
Avenger TBF1 41" .29 to .61 — 14.95
B66 Jet Bomber 18" .039 to .074 — 2.50
Baby Barnstormer 23" AA — 3.25
Baby Clown 22" AA — 1.80
Baby Ringmaster 21" .049 to .074 — 1.50
Bandit 35" .29 to .35 — 3.50
Barnstormer 47" A-B — 6.50

AHC HAS EVERYTHING

ORDER FROM THIS MAGAZINE . . . OR SEND FOR OUR CATALOG

ONLY AHC GIVES YOU ALL THESE EXTRAS!

1. One year subscriptions to Model Airplane News, Air Trails and Flying Models or their equivalent value to our regular customers.
2. 14-Day Money Back guarantee on unused purchases.
3. BONUS ITEMS with every engine ($3.95 or over) purchased. Includes: Correct Size Propeller, Glo Engine Handbook, etc.
4. BONUS ITEMS with Gas Planes (selling at over $1.95) . . . includes: Construction Manual, Rubber Wheels, Insignia, etc.
5. **IN U.S.A.** no postage or packing charges for orders of over $2.00 (include 25c if order is under $2.00). We insure safe delivery ANYWHERE IN THE WORLD. **Outside of U.S.A.** (except APO & FPO) add 10% for postage (minimum 50c).
6. Membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY ON YOUR PURCHASES. Over 100,000 members!
7. No "minimum" orders. Any order is welcome.
8. **Fastest Service in the World!** Whether your order is for 5c or $500.00, you get our famous **24 HOUR SERVICE**
9. Most complete model stock in America—gas, rubber, solids, etc. If it's advertised, we can usually supply it.
10. Competent understanding of your modeling problems.
11. 64 page giant catalog FREE with every order. On Request

SATISFACTION GUARANTEED OR YOUR MONEY BACK

Little Bipe 16" AA-A — 1.50
Little Devil 18" AA-A — 1.50
Little Ike 18" .020 to .074 — 1.50
Little Mustang 18" AA — 1.95
Little Starfire 18" .020 to .074 — 1.95
Little Stinker 16" .039 to .074 — 2.95
Lockheed Starfire 40" .19 to .35 — 3.50
Lucky Racer 18" .035 to .074 — 1.95
Mans Cat 27" .19 to .35 — 3.50

Stits Playboy 18" .020 to .074 — 2.50
Stuka 18" .039 to .074 — 2.50
Stuka 23½" .049 to .099 — 3.95
Stuka 34" .19 to .36 — 7.50
Stuntmaster 18" .039 to .074 — 1.69
Super Clown 38" B-C — 2.95
Super Duper Zilch 52" C-D — 8.95
Supr. Ringmaster 42" - .19-.60 — 4.95
Super Sabre 18" .035 to .074 — 1.95
Super Stuntmaster 20" .049 to .099 — 2.95
Super Squirt 21" (Jet) — 5.95
Super Whirlaway 12½" A-B — 4.95
Swifty 19½" .049 to .074 — 2.29
Swordsman 18" .020 to .049 — 1.49
T-Square 36" .29 to .35 — 2.95
T-28 Trainer 18" .020 to .074 — 1.50
T-28 N.A. Trainer 30" B-C — 6.95
T-28 Trainer 20" .049 to .074 — 2.29
Thunderbird 54" C — 8.95
Thunderbolt P-47N 33" .15 - .29 — 5.95
Tom-Tom 40" .29 to .35 — 4.50
Tomahawk 40" .19 to .36 — 3.50
Trixter Improved Trainer — 4.50
Typhoon 17" .035 to .074 — 3.50
Typhoon 31" .09 to .19 — 2.95
Waco 33" .29 to .35 — 6.95
Waco Cabin 12" AA — 1.80
Waco Cabin 35" .035 to .074 — 3.95
Warhawk 15" .049 to .074 — 4.75
Warhawk 17" AA-A — 1.95
Warhawk Berk. 45" .19 to .35 — 6.95
Warrior 36" .19 to .35 — 5.50
Wee Duper Zilch 34" AA — 2.95
Whipsaw 31" .099 to .19 — 1.95
Woodchopper 32" .19 to .35 — 2.95
Wow 40" .19 to .35 — 3.50
Wowee 23" .049 to .074 — 1.95
X-15 17" .020 to .074 — 1.50
Yak (Sterling) .19 to .35 — 3.50
Zero 18" .045 to .074 — 3.50
Zilch 20; 20½" .035 to .074 — 1.50
Zilch X-Pendable 38" A-B-C — 3.95

Super Buccaneer 90" - C-D — 14.95
Waco Cabin 52" .15 to .29 — 9.95
Waco Cabin 36" .049 to .099 — 3.95

READY-TO-RUN

AIRPLANES • WITH ENGINES
Aeromite 17" (Assembled) — 10.95
Baby Yank 23" (Less Eng. .020) — 1.50
Bonanza 16" (Assembled) — 9.95
Corsair 14" (Assembled) — 8.95
Cutlass 13" 14.95 W/Muffler — 16.95
DYO-X100 16" Metal .049 Eng. — 12.95
Firebaby 19" - 7.95; Biplane — 9.75

METAL GAS TANKS
Darwin Brass Pee-Wee (⅜" w, ⅜" h): 1", 1½", 2", 2½" ea. — .50
L (2⅜" w, 1⅜" h): 1½", 2", 2½", 3" 3½", 4" ea. — 1.00
Veco: T31 2½, 3, 3½ or 4 oz. — 1.10
Dmeco R-C Tanks: 2 oz. — 1.59
4 oz. 1.69 6 oz. — 1.89
Perfect: 1½ x 1 x 2 (or 3") — .59
1⅜" x 1¼" x 3" (or 4") — .69

GLO PLUGS (STATE ENGINE)
McCoy, O&R, K&B, Kwik Start, Veco Cox, Fury, Wasp or T.D. ea. — .65

ACCESSORIES & MISC.
BERKELEY control lines
.008, .010, .012 - 2'-55' — .50
.008, .010, .012, .014 2-70 — .55
Stranded .018, .021 55' 1.00; 70' 1.25; 200' — 3.00
PYLON control lines
.008, .010, .012, .014, .016; 2-52' — .60
.010, .012, .014, .016 2-70' — .75
Stranded .015 - .018 x 2/52' — 1.75
Stranded .015 - .018 x 2/70' — 2.25
Flexible 3-line 57' .010 or .012 — 3.3[illegible]
Nylon Lines AA — .2[illegible]
U-Reely Contr. Handle w/wire — 7.75
Cable .015 8.75 .018 — 8.95
Darwin Metal Control Handle — 1.00
Berkeley Metal Flight Reel — 1.00
Controliner Flight Reel (with handle & wire) ½A 2.25 A-B — 2.50
U.S. Shutoff Valve — 1.00
Flexible Needle Valves: Cub, Royal Spitfire, Spitzy—49c; Wasp; Baby Spit. Infant, 39c; Universal Needle Valve (A-B-C engines) 50c; Flexible .75
Needle Valve extension flexible — .25
Plug Wrench .30; 4 Way Socket — .60
Glue Gun 1/5 oz. .50 1 oz. — .75
Bolts ½", ¾", 1", 1¼", 1½", 2" — 12/.20
AMA Decals ⅛" .10; 1", 2" .25; 3" .35
Scoremarker Decals (100) — .10
Austin Booster Plug-In — .40
Midget Switch: slide—.25 Toggle — .50
Condenser .20; Smith Metal — .35
Rogers or Wilco Ignition Coil — 3.00
Alligator Clips — .10
1½ Volt Glo Battery — .15
Battery Conn. Cord: Kit .40; Asm. — .60
K & B Uniclip — .15
Glo Plug Clips: O&R .15; Spitfire — .20
O & R Snap Pack — .35
Perfect Glo Clip or Kwik Klip — .29

DOPES (Cont'l U.S.A. Only)
We Stock All Brands of Dopes
Cement: A'gloss, Comet, Testors ea. .15
Aerogloss Plastic Balsa Tube — .25
Rubbing Compound or Wax — .40

BOOKS
$1.00 EACH: Berkeley R/C Book; Gas Eng. Hndbk; Berkeley Eng. for Models; Berk. Handbk; Controliner; Zaic Model Yrbk; Eng. Manual & all other
MISC: Basics of R/C - .35; Application of R/C - .50; Std. R/C Equip. - .50; Aerodynamics of Model Planes - 3.00; Model Air. Eng. - 3.50; McEntee's R/C Hndbk - 2.25; Musciano Plans Manual or Bldg. & Flying ea. 2.95; 1957-58 Aero Yrbk. - 2.00; Winter's Model Handbk. - 3.50; Flying Models Handbk. - 2.00

MODEL BOATS

Allyncraft 18" Plas. In or Outbd. — 2.95
Miss Thriftway — 2.95
Thriftway Too 24" .045 to .099 — 4.95
Tempus Fugit 16" Outbd. — 1.95
North Star 35" .19 R/C or elec. — 16.95
Little Breeze 32" .09, R/C, elec. — 19.95
American Scout 50" R/C — 16.95
U.S.S. Missouri 56" R/C — 18.95
Tug Boat (Veco) 35" R/C — 24.95
Corvette (Sterling) 48" R/C — 26.95
Flash (Plastic) 17" In or Outbd. — 2.95
Chris-Craft Challenger 33" C-D — 11.95

SPECIAL BONUS OFFERS

FREE of extra cost with every **GAS ENGINE**
Bonus items include: Tube of "REV-UP" Lubricant (makes your engine last twice as long), Ownership Decal, Correct Size Propeller, Glo Engine Handbook, Mounting Nuts & Bolts, Numeral & Alphabet Decals, etc., etc. FREE of extra cost.

FREE of extra charge with **GAS PLANES** selling at over $1.95 only
Bonus items include: Ownership Decal, Gas Model Construction Manual, Correct Size Rubber Wheels, Insignias, Numeral & Alphabet Decals, etc. FREE of extra cost.

WE MATCH ANY OFFER

AHC matches any offer made by any other advertiser. Attach ANY ad in this issue to your order — and take advantage of the AHC "extras."

ORDER NOW! Get all these AHC "EXTRAS"

Thermal Hopper (FF) (AA) — 6.95
Veco .19 11.95 .29 or .35 — 14.95
Veco .19 R/C 15.95 .35 R/C — 19.95
Veco 100 Series .29 or .35 — 15.95
Holland Hornet .049 or .051 ea. — 6.95
Wen-Mac .049 Pkg. 3.95 W/Str. — 5.95

DIESEL ENGINES
McCoy .049 (AA) — 7.95
O.K. Cub .049 - 6.95; Cub .075 — 7.95

IGNITION ENGINES
Forster .99 — 26.50
Spitfire .65 Lap 32.00 Ring — 30.00
Wasp Twin .60 — 29.50

MARINE ENGINES
Allyn Mer-Fury .049 5.95 .12 — 10.95
Cameron .09 9.95 Doubleist — 11.95
.19 Water cooled 14.95 Dblist — 16.95
O.K. Cub .049MS — 7.95
O & R Midjet Mariner — 7.95
Above with Drive Unit — 12.95
Sea Fury Inboard .049 (AA) — 9.95
Twin .12 Outboard — 14.95
Outbd. .049 10.95 .060 — 11.95
Wen Mac .049 Inboard — 7.95

JET ENGINES
Dyna-Jet Redhead — 35.00
Mew 601 1.95 Mew 307 — 14.95
Jetex Atom 35 — 1.49
Jetex 50 — .98 Contest Sel. — 1.95
Pesmaster 1.95 Scorpion 600 — 3.95
Pest 50 1.00 Pest Dbl. 80 — 1.25

ELECTRIC MOTORS
Pittman "Panther" 6.75 Super — 8.50
Pittman Jr. 5.00 Dynamite — 1.98
Outboard Jr. 1.99 Super — 2.95
Johnson or Evinrude Outboard — 5.95

ENGINE ACCESSORIES
Tatone Clkwk. Timer 3.95 16dP — 3.75
Tatone Clockwork Dethermalizer — 3.95
Annco Speed Control — 3.95
Throttle Control (Bramco) — 4.95
Roto Valve ½A 2.00 .19 to .35 — 4.95

Bearcat F8F 27" .15 to .29 — 5.95
Boeing P26A 18" AA — 2.95
Bonanza 18" .035 to .074 — 1.95
Brave 36" .19 to .35 — 5.25
British SE5 .020 to .074 — 2.50
Bullet 24" .020 to .099 — 2.95
Cessna 180 18" A.A. — 1.69
Cessna 182 18" .035 to .074 — 1.95
Cessna Birddog 18" .035 to .074 — 1.69
Cessna 195 36" .29 to .35 — 3.95
Checkmate 16" .049 to .074 — 1.95
Chief 63" B-C — 6.95
Chipmunk 18" .020 to .074 — 2.50
Circus Prince 27" A-B — 1.95
Circus King 40" B-C — 2.95
Cobra 38" .19 to .35 — 4.95
Continental 40" .19 to .29 — 7.95
Corsair 18" .020 to .074 — 1.80
Corsair 17" .035 to .074 — 3.50
Corsair 18" .049 to .074 — 1.95
Corsair 36" .29 to .49 — 6.95
Curtiss P-40 27"—.099 to .19 — 2.80
Curtiss Hawk P6E 17¼" AA — 2.95
Curtiss Hawk P6E 23⅝" A — 4.95
Curtiss Tigershark 27" .099 - .19 — 2.50
Dar-Devil Jr. 36" .19 to .35 — 5.95
Der Wing 46" .19 to .35 — 5.95
Der Wing Jr. 36" .15 to .29 — 5.50
Dauntless SBD 31" .14 to .36 — 7.95
Dil Bod 14" .049 to .061 — 2.75
E-Z Trainer 18" .035 to .074 — 1.29
Fairchild PT-19 18" .049 to .099 — 2.50
Fairchild 24K 22" .020 to .049 — 1.95
Firebaby 19" 2.95 Biplane — 3.50
Firecat 42" ½A Models (2) 3.95 & 4.95
Flite Streak 42" .15 to .35 — 3.95
Flying Fool 34" .19 to .35 — 3.95
Flying Clown 28" A-B-C — 1.95
F7U Cutlass 18" .020 to .074 — 2.50
Focke Wulfe 190 16" .039 - .074 — 1.50
Fokker D7 18" .020 to .074 — 2.50
Focke Wulfe 190 17" AA — 3.50
Fokker D-VII 32½" UC .19-.35 — 6.95
Fokker D7 14" AA — 2.95
Fokker Triplane 14" AA — 2.95
Fokker Triplane .020 to .074 — 2.50

Mentor T-34A 33" A-B — 5.95
ME109 18" .020 to .074 — 1.95
Mew Gull 33" .19 to .35 — 6.95
Mini-Whirlaway 8" AA — 2.95
Minnow 28" A-B-C — 5.95
Mitchell B-25-(2) .099 to .12 — 14.95
Monocoupe 36" .29 to .35 — 5.95
Monocoupe 18" .039 to .074 — 1.69
Monoline Trnr. 36" .19 to .35 — 4.50
Mr. Mulligan 18" .049 to .074 — 2.50
Mr. Mulligan 32" .29 to .35 — 5.95
Mustang P51 28" .15 to .29 — 8.95
Mustang F51 23" .049 to .099 — 2.95
Mustang (Sterling) .19-.35 38" — 3.50
Mustang F51 18" .045 to .074 — 1.95
Mustang (Veco) 40" .29 to .35 — 8.50
Mustang P51 19½" .049 to .099 — 2.29
Mustang 30¾" .19 to .35 — 9.95
N.A. P51 16" AA (Com) — 3.50
Navion 42" .19 to .35 — 3.50
Nieuport 28 - 33" .29 to .60 — 6.95
No. Amer. AT6 (SNJ) 31" A-B-C — 4.95
No. Amer. AT6 18" .020 to .074 — 2.50
N.A. AT6 15⅝" .049 to .074 — 1.29
N.A. Savage 26" .049 to .099 — 7.95
Nobler 60" .29 to .35 — 8.95
Omega Stunter 37" .19 to .35 — 4.95
Omega 33" .15 to .35 — 2.95
Orbit Ace 40" .19 to .35 — 3.50
P38 Lightning 41" .14 to .29 — 10.95
P40 Flying Tiger 18" .039 to .074 — 2.50
P40 Flying Tiger 28" .19 to .35 — 9.95
Papoose 32" .19 to .29 — 4.50
Piper Comanche 18" .039 - .074 — 1.95
Piper Cub Cruiser 18" .039-.074 — 1.69
Piper Tripacer 18" .049 to .074 — 1.95
Pitts Special 25" .14 to .29 — 5.95
Polish Fighter 36" .29 to .49 — 6.95
Profile Trainer I 24" .049 to .099 — 3.25
Trainer II 30" .14 to .19 — 4.50
Trainer III 36" .19 to .36 — 5.95
Puddle Jumper Jr. 19" .049 to .074 — 1.95
Quest 30" B — 4.95
Quicker Combat 36" .19 to .35 — 4.50
Rat Racer 24" .25 to .40 — 4.50
Rat Racer 24" A-B-C (Midwest) — 3.95

FREE-FLIGHT PLANES

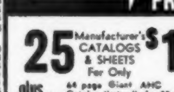
DUCTED FAN MODELS
Crusader 27" - .049 to .099 — 4.95
Fairey Delta 39" .064 to .099 — 12.95
Lavochkin 37" .03 to .074 — 5.75
Sabre F86E 34" .03 to .074 — 8.95
Skyray 25" - .049 to .099 — 4.95
T-33A 26" - .049 to .099 — 4.95
Props: 83½", C3⅝", D3⅝" ea. — 1.75

FREE FLIGHT PLANES
Aeronca Sedan 34" .039 to .074 — 2.50
Aircoupe 23" .020 to .049 — 1.95
Bird Dog 23" .020 to .074 — 1.95
Blazer ½A 40" .049 — 2.50
Colonial Skimmer 36" - .049 — 3.50
Cessna 195 23" .020 to .074 — 1.95
Commanche 36" .049 to .074 — 3.25
Dakota 24" .049 to .074 — 3.50
Fairchild 24 36" .039 to .074 — 2.50
Flutterbug 34" .039 to .074 — 2.50
Fokker D7 21" .020 to .049 — 1.95
Forte Strop - .049 to .074 — 2.95
Fuber 36" — 2.50
KIWI 35" AA 2.95; 44" A — 4.95
Mini-Hogan 34" - 2.50; 45" — 2.95
Monocoupe 21" .020 to .049 — 1.95
Mooney Mite 45" .049 to .19 — 8.95
Pavee 50" (.049) — 2.95
Privateer Flying Boat 36" FF AA — 2.95
Piper Apache 24" .020 to .049 — 1.95
Piper Cub 27" .049 to .074 — 2.80
Ram Rod 250 - .049 to .074 — 2.50
Ram Rod 600 - .19 to .29 — 5.95
Ranger 30" .020 to .049 — 1.95
Rearwin Speedster 22" .020 - .049 — 1.95
SE5 20" .020 to .049 — 1.95
Skyliner 32" .020 to .049 — 2.50
Smoogie 34" .039 to .074 — 2.50
Sniffer 29" AA — 2.25
Space Terror 24" - .020 — 1.50
Stinson Sentinel 34" .039 - .074 — 2.50
Stinson Voyager 34" .039 - .074 — 2.50
Super Cadet 35" .039 to .074 — 2.95
Super Liner 24" - .020 — 1.50
T-Bird 39" .020 to .074 — 2.95
Taylor Cub 35" .020 to .049 — 1.95
Tomco "Jet 180" - 30" — 3.95
Waco Cabin 52" .19 to .35 — 9.95
Zook 33" AA 2.50; 50" A-B — 4.95

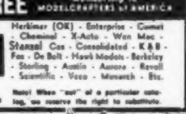
RADIO CONTROL PLANES
Or Fly Them Free Flight!
Aero 9 - 48" .09 to .15 — 7.95
Aero 15 57" - .15 to .19 — 10.95
Aeronca C3 36" .035 - .099 — 2.50
Aeronca C3 54" .09 to .19 — 5.95
Aircoupe 45" .074 to .29 — 6.95
Astro Hog 72" - .35 — 14.95
Bird Dog 36" FF AA — 2.95
Bootstraps "A-RC" 54" AA-A — 4.95
Breezy Jr. 42" .049 - .074 — 6.95
Breezy Sr. 56" .09 to .23 — 14.95
Buhl Pup 37" - .049 — 3.00
Buster 48" - .15 to .35 — 9.95
Cessna 170 - 73" B-C — 13.95
Cessna 172 - 54" .09 to .19 — 8.95
Cessna 1o0 35" AA — 2.95
Cessna 180 45" .09 to .15 — 6.95
Clipper 34" AA — 2.95
Custom Livewire 66" .35 to .35 — 21.95
Custom Privateer 114" .45 - 1.2 — 19.95
De Haviland Beaver 48" AA — 4.95
Esquire 80" .049 to .099 — 7.95
Fairchild PT-19 - 72" .15 to .29 — 24.95
Fairchild PT-19 - 48" .09 to .19 — 6.95
Fokker D-7 - 28" .049 to .074 — 4.95
Helioplane 39" AA — 3.95
Kitten 34" .020 to .074 — 4.95
Livewire Champion 56" .15 - .19 — 13.95
Livewire Cruiser 65" .15 to .29 — 17.95
Livewire Trainer 48" .09 to .15 — 9.95
Livewire Rebel 48" .074 to .09 — 9.95

NEW RELEASES

We Have All The New Items of Every Manufacturer As Soon As Released. See Below or See Any Mfgrs. Ad, Then Order By Mail from AHC.



Babcock "Tri-Pacer" $9.95
Fuel-proofed plastic model for R/C, F.F. or U-Control flying. 37" wingspan, all prefab to assemble in a few hours.



SWORDSMAN 18 $1.49
C. Goldberg's latest ½A controline mod. 18" span, Profile & Fully prefab, die cut.

Why Order from any Manufacturer?

We carry in stock all the planes, motors, etc. of every manufacturer advertising in this magazine.

ORDER from AHC and GET FREE Postage & Insurance — FREE PREMIUMS — FREE Membership in MODELCRAFTERS of AMERICA

25 Manufacturer's CATALOGS & SHEETS For Only **$1**
plus . . 64 page Giant AHC Catalog that sells for 25c

Herkimer (OK) - Enterprise - Comet - Chemical - X-Acto - Wen Mac - Stanzel Cox - Consolidated - K&B - Fox - De Bolt - Hawk Models - Berkeley - Sterling - Austin - Aurora - Revell - Scientific - Veco - Monarch - Etc.

Note! When "out" of a particular catalog, we reserve the right to substitute.

Firebee Kit with Engine — 12.50
Flight Trainer (Assembled) — 7.95
Flying Circus (Assembled) — 9.95
Flying Platform 13.95; Pogo — 14.95
Little Stinker 10" w/Spring Str. — 9.95
Piper Tripacer 16" w/Cub .049 — 7.95
Skymaster TD1 24½" — 15.95
Starfighter 16" w/Cub .049 — 14.95
Super Sabre F100 10½" (Asmbled) — 6.98
Super Cub 105 17½" — 7.95
Super Yank 27" (Less Eng.) — 1.95
Tomco "Jet 50" 17½" — 1.50
Tripacer (Flastic) 16" .049 — 7.95
Turbo Jet 16" (self-starter) — 12.95
Mustang 16" 12.95; Sabre 44 — 9.95
Yellow Jacket 13" w/.049 Eng. — 6.95

SPEEDBOATS • WITH ENGINES
Allyn Craft Outbd. w/eng. — 15.95
Aquamite (with engine) — 12.95
Corvette w/engine & starter — 15.95
Water Wizard (with engine) — 9.95

RACE CARS • WITH ENGINES
Automite 11.95 w/Starter — 13.95
O & R Motorjet (All assembled) — 16.95
O & R Gilmore (Asmbld. w/eng.) — 24.95
Rodzy Complete with Engine — 16.95

ACCESSORIES

PROPELLERS
Pee Wee Nylon 4½-2½ — .20
Whizzer Nylon; 9/6, 10/6 — .70

PLASTIC MODELS

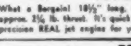
AHC carries everything in Plastics! Airplanes! Cars! Boats! Every Mfgr.! Shown here is only a small part of our hundreds of stocked models. ORDER YOUR PLASTIC MODELS FROM AHC! Complete Catalog 25c

O.K. (short or long) — .59
Champion Sport — .30

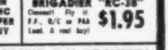
WHEELS
K&B Alum. Hub: 1" — 40c; 1½" — 60c
2" — 80c; 2½" — 1.00
Semi Pneumatic (pr) 2" — 1.25
2½"—1.40; 3"—1.75
Sponge Rubber (pr) ¾"-1" 30c
1⅛"; 1¼" 35c 1⅜" 40c 1½" 45c
1¾"—60c; 2⅜" — .45
Tail Wheels ½"; ⅝"; 1" — .15

ORDER - FUELS - BY - MAIL
WE SHIP CONT'L U.S.A. ONLY
Fox: Hi-Nitro Pt. 1.25 Super Pt. — .95
O.K. Cub Glo or Diesel Pt. — .85
O&R AA or #2. ½ Pt. - .50; Pt. — .95
Pactra - ½ Pt. .59 Pt. — .95
"1000" ½ Pt. 60c; Pt. 1.00; Qt. — 1.80
Powermist Pt. 1.10; Qt. — 1.80
Supersonic "100" Pt. .85; Qt. — 1.50
Testor "39" Pt. .85c; Qt. — 1.50

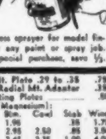
SAVE ON THESE AHC BARGAINS



POWERFUL "TIGER JET" ENGINE
REG. $19.95
YOU SAVE A GREAT BIG $10.00
What a Bargain! 18½" long, Pulse Jet Type Engine. Develops approx. 2½ lb. thrust. It's quick starting . . . easy to work. A truly precision REAL jet engine for your models. Hurry!
9.95 AN AHC SUPER BUY

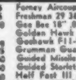


38" SPAN
FOR ENG. .020 to .099
BRIGADIER "RC-38" Glider? Fly it F.F., R/C or PAA Load. A real buy! **$1.95**



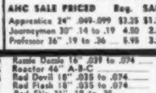
HOBBYIST'S ELECTRIC SPRAYER REG. $8.50
5.89
Famous Burgess sprayer for model finishing or for any paint or spray job. We made special purchase, save ⅓.

ATWOOD CADET .049 GLO ENGINE
SAVE $2.95



DELUXE ATWOOD SHRIEK .049 ENG. SOLD FOR $4.95 **3.95**

DELUXE U/C TRAINERS



BY MONARCH
All prefab, deluxe profile flyers

AHC SALE PRICED	Reg.	SALE
Apprentice 24" .049-.099	$3.25	$1.98
Journeyman 30" .14 to .19	4.50	2.98
Professor 36" .19 to .36	5.95	3.98

Fox Radial Mt. Plate .29 to .35 — .75
McCoy .049 Radial Mt. Adaptor — .35
Darwin Mounting Plates — .50
Speed Pans (Magnesium):

	Top	Btm.	Cowl	Stab	Wing
½A	2.40	1.95		.35	1.75
A	2.95	2.95	2.50	.85	3.50
B	3.45	3.45	2.75	1.00	4.00
C	3.95	3.95	3.00	1.15	4.80

Dynajet Speed Pan — 12.95
"Hornet" Micro Tank (FF) — 1.50
Needle Valve:
Fox, O & R, McCoy RH ea. — .50
McCoy Flex .50; K & B — .45

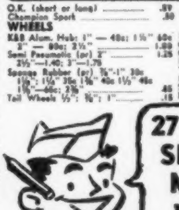
Forney Aircoupe 18" .020 to .074 — 2.50
Freshman 29 36" .29 to .35 — 5.95
Gee Bee 18" .020 to .074 — 1.95
Golden Hawk 18" .035 to .074 — 1.95
Goshawk F11-C2 24" .074 to .15 — 4.95
Grumman Guardian 50" .19-.35 — 7.95
Guided Missile 22" .020 to .074 — 2.50
Guided Starlet 24" .039 to .074 — 2.75
Half Fast III - 38" .19 to .36 — 3.95
Hellcat 18" .039 to .074 — 1.95
Helldiver SBC-3 26" .09 to .29 — 5.95
Hawker Fury 18" .049 to .099 — 2.95
Hell-Razor 9" AA — 2.00
14" A 6.50 15" B 6.95 18" D — 7.50
Howard Pete 30" .29-.49 — 6.95

Razzle Dazzle 16" .039 to .074 — 2.50
Reactor 46" A-B-C — 6.95
Red Devil 18" .035 to .074 — 1.69
Red Flash 18" .035 to .074 — 1.69
Red Skin 31" .19 to .35 — 5.25
Red Wing Jr. 30" .099 to .19 — 3.95
Red Wing Sr. 38" .19 to .36 — 9.95
Regal Raider 24" .29 — 8.95
Ringmaster 42" B-C 3.50 Jr. 30" — 2.50
Royal Rodent 24" - .29 — 6.95
Ryan PT16 Trainer 18" .039 - .074 — 1.95
Ryan S.T. 17½" 2.50; 36" — 6.95
Sabre 38" .19 to .35 — 4.95
Sabre Stunt 50" .29 to .64 — 8.95
Satellite Saucer 15" .074 - .15 — 2.95

WE ALSO SELL TO DEALERS

We know your problems because we have your problems! Write for sample catalog & our famous 9-point service program — the reasons why more dealers are doing business with us. Includes our 60-day return privilege, etc. Special data if you are going into business. We ship anywhere in the world . . . export our specialty! Send 50c for complete Dealer Package, Catalogs, etc. Refunded with your 1st order.

MOD-AD AGENCY, Inc.
146-148 W. 22nd St.,
New York 11, N. Y.



27 YEARS OF SERVICE TO MODELERS
1931-1958

OVER 5,000,000 MODELERS KNOW
YOU BUY WITH CONFIDENCE AT AHC
Use Our Handy Order Blank Next Page

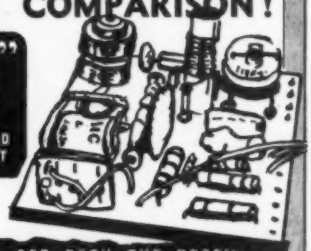
HOW TO ORDER
Send payment in full (sorry, no stamps or C.O.D.'s) to
AMERICA'S HOBBY CENTER
146M West 22nd St., New York 11, N.Y.

Radio AHC Control

EXCLUSIVE AHC BARGAINS! — ORDER BY MAIL

NEW . . . an unbeatable R/C Combination that Challenges ANY COMPARISON!

AMTRON "Vanguard" TWIN TUBE R/C OUTFIT PRINTED CIRCUIT



Here's the Precision Equipment You Always Wanted . . . at a Fraction of What You'd Expect to Pay!

We ask every R/C fan to order and compare this truly precision engineered R/C equipment. Examine it for 14 DAYS FREE! If you aren't convinced that it's equal to and superior to ANY SET selling up to twice the price, return it for full refund! No Questions Asked!

OPERATES ANY MODEL . . . BOATS, CARS & PLANES
From ½A to the Very Largest ● Up to 1½ Miles

"VANGUARD" RECEIVER is a superior quality outfit—unmatched for reliability, accuracy and performance. It will fit into just about any model you can find, weighs a mere 1¼ ounces (including relay) and measures 1½" x 2" x 1". Despite its light weight and compact design, it is one of the finest precision R/C instruments ever made. Other features include: One stage single tuning ● All printed circuits ● Twin diodes ● Accurate & positive pin point control at all ranges ● Low .15 battery drain as compared with .3 or .4 on most receivers ● Saves you countless $$$ on battery costs ● No part required ● 22½ Volt battery operation ● Transformer that eliminates sensitivity control ● New improved 1AG4 tubes ● Super sensitive 5000 Ohm Jaico relay ● Plastic case ● All prefabricated & easy to assemble ● Complete Instructions & Diagrams Included.

SALE PRICED AT LESS THAN THE REGULAR WHOLESALE COST

"VANGUARD" TRANSMITTER is a powerful output instrument with all the precision components found only in the most expensive units. It has a simplified built-in tuning indicator with a one adjustment feature. Tuning-Eye light for E-Z checking. Printed Circuit Chassis. Exclusive new design that reduces "B" battery drain, yet supplies maximum power output. Other quality features include: Deluxe Crystal, Powerful 3A4 Tube, Handsome portable Aluminum case that you easily hold in your hand and really easy to assemble construction. The step-by-step assembly instructions are a cinch to follow. R/C fans who have seen the "VANGUARD" TRANSMITTER tell us its the biggest bargain they ever saw — equal in power and quality to the most expensive!

GET BOTH THE RECEIVER AND TRANSMITTER KITS
Both for only **$24.95**
A Guaranteed $39.95 Plus Value

ASSEMBLED OUTFIT
Same as Above, But
Ready-To-Operate $34.95
ALL "VANGUARD" TESTED AND ASSEMBLED READY FOR USE. Less Batt.

INDIVIDUAL PRICES

"Vanguard" RECEIVER KIT with All Components, less batteries	$12.95
ASSEMBLED RECEIVER, Ready-To-Use & Tested, less batteries	17.95
"Vanguard" TRANSMITTER KIT, All Components, less batteries	12.95
ASSEMBLED TRANSMITTER, Ready-To-Use & Tested, less batteries	17.95

RETURN IN 14 DAYS IF NOT 100% SATISFIED

We want you to prove to yourself the excellence and terrific value of these AMTRON "VANGUARD" R/C instruments by actually examining them FREE for 14 days. If this isn't the best buy you ever saw, return UNUSED and you get every penny refunded.

R/C BARGAINS UP TO 60% OFF

Finest Quality ● Fully Guaranteed ● Order Now

½ PRICE $1.98 R/C Deluxe Receiver INSTALLATION KIT **98c**

CRYSTALS 27.255 mc. $6.50 VALUE **2.89**
New R/C MC Bands Sold 26.995; 27.095; 27.145 or 27.195 **3.95**

MILLIAMETERS AHC Sale on Quality R/C Tool Meters

	Reg.	Sale
0-3	$4.95	$3.95
0-5	3.95	2.95
0-50	2.75	2.29

	REG.	SALE
4000 OHM SIGMA RELAY	$2.95	$1.69
HEX. ALIGNMENT TOOL	.65	.39
S.R. ESCAPEMENT	3.95	2.95
Special 1A64 R/C Tubes	2.95	1.79
3Q61 R/C TUBE	3.85	2.95
3A5 R/C TUBE	1.25	.98

	REG.	SALE
R/C MULTITESTER	$34.95	$12.95
REED BANKS (3)	34.95	14.95
5 Bank	15.45	6 Bank 18.95
KEYING SWITCH	.45	.29
PLUG & JACK SET	.25	.18
COMPOUND ESCAPEMENT	5.95	3.95

NEW, LOW-PRICED PRECISION RADIO CONTROL OUTFIT

Here it is! The Sensational, New AMTRON "SPACE CADET"

Get Both receiver and transmitter . . . plus tubes, escapement, crystal, etc. All for the one low price!

$25.00 Value **$14.95*** IS ALL YOU PAY

*Less Batteries, Only.

One of the most dependable performing R/C OUTFITS we've ever seen (second only to our deluxe "Vanguard" Outfit). FULLY TESTED, too, and GUARANTEED to operate all models . . . from Hall-A to the very biggest. Very simple assembly, too! Operates on 27¼ mc. Range 1-1½ miles. Features a lightweight, compact RECEIVER . . . weight under 3 ounces. An extremely accurate performer, with all deluxe components. Powerful, hand held TRANSMITTER . . . a truly precision instrument . . . complete with metal case. The new Amtron "SPACE CADET" is all prefabricated, comes with easy to follow assembly instructions. It's easy to operate, too!

ABOVE OUTFIT ALL ASSEMBLED Ready-To-Operate Completely TESTED & ASSEMBLED! Less Batteries **23.95**

INDIVIDUAL PRICES Less Batteries, Only

Space Cadet Receiver Kit	$8.95
Receiver Assembled	10.95
Space Cadet Transmitter Kit	9.95
Transmitter Assembled	12.95

R/C FANS!

AHC HAS EVERYTHING YOU WANT! EVERY BRAND! ALL PARTS AND ACCESSORIES! SEND US YOUR ORDER AND GET ALL THE AHC EXTRAS!

Field Strength Meter 9.95
A real buy! Complete! Wired, adjusted and Ready-to-Operate. In plastic case. "AMTRON"

Receivers—Single Channel		Transmitters—Single Channel	
Aeromod Mark IV Recvr. Kit	15.95	A'bral Mark IV 15.95 Assbld.	24.95
Mark IV Receiver Assembled	24.95	Magic Wand Kit 19.95 Assbld.	29.95
Babcock BCR-8A or B (Assbld.)	39.95	Bodaco (Assembled)	34.95
Maple Corner Kit 21.95 Assbld.	34.95	Citizenship MRT Kit	19.95
Bodaco (Assembled)	24.95	MRT Citizbin Kit Transistor	19.95
Brantho (Assembled)	29.95	MTK Citizbin Assembled	26.95
Citizbin PR27 17.95 Assembled	27.95	Citizenship 468AC (Assembled)	24.95
Citizenship 468AR (Assembled)	26.95	Citizenship 468MC Transistorized	26.95
CG R1 Kit 19.95 (Assembled)	26.95	CG T11 Kit 15.95 (Assembled)	22.95
CGRT1-3V 39.95 CGRX-1	34.95	CG T12 Kit 22.95 (Assembled)	31.95
Deltron R100 (Assembled)	24.95	Deltron T99 (Assembled)	21.95
Deltron R109 (Assembled)	29.95	Deltron T100 (Assembled)	29.95
Reytrol #100 13.95 200	19.95	Reytrol 800X (Assembled)	34.95
Super A'bral 18.95 (Assembled)	29.95	A'bral 19.95 (Assembled)	24.95
Tone Assmbrl (Assembled)	34.95	Tone Assmbrl (Assembled)	44.95

Receivers—Multi Channel		Transmitters—Multi Channel	
(2) Babcock BRC-7	69.95	(2) Babcock 466MC (Assembled)	69.95
(3) Citizenship REB	44.95	(2) Citizenship 466 (Assembled)	39.95
(3) CG RT2 (Assembled)	69.95	CGT2 59.95 CGT9	99.50
(5) CG RT3 (Assembled)	99.95	(5) Citizbin CGT5 Assembled	89.95
(6) CG RT6 (Assembled)	119.50	(8) Citizenship CGT-8	149.50
(8) Citizenship MSR-8	99.95	RAYTROL: (3) (Assembled)	68.00
(8) Citizenship RT8	139.50	(5)	91.75
RAYTROL: (3) Assembled	64.50		
(5)	86.00 (6)		

R/C Parts & Accessories	
Gen Relay 5000 ohm 4.35; 7500	5.45
Super Sensitive Escapement	3.95
Berk. DE Relay 7.50 Comp. Escp.	6.95
Babcock Proportional Servo	14.50
Babcock Proportional Pulser	19.95
Babcock Super Comp. Escp.	7.95
Babcock Proportional Servo	24.95
Citizenship Escapement 6.95; S.R.	7.95
Cameron 5M Escape (2 pos.)	12.50
Cameron 5N Escape (4 pos.)	8.95
Cameron Command Escapement	8.95
Babcock Elevator Servo	12.50
Bonar VariComber Simple	8.95
Dual 16.95 Rudder Elec.	9.95
Bonar Servo 14.95 SM Engine	8.95
Multi-Servo 2 PM 11.95; 3 PM 14.95; 2 P2M 11.95; 3P 10.95; 8PM 2P2PMX or 3PMX	24.95 on 14.95
Multi-Servo Rudder L or R	8.95
Multi-Servo Elevator U or D	10.95
Raitcast 6 Horn (RC)	.75
Raley (Amtron) Super Sensitive	3.95
Installation Kit	1.00
U-15 Battery Box 1 cell, 30; 2 cell	2.00
Battery Boxes: 1 cell .39; 2 cell	.50
3 cell .60; 4 cell .59; Specify battery
Tubes: XFG1 2.85; 3A5 - 1.25; 1AG4 2.95
3V4 1.75; 1U4 1.75; 1U8	2.25
Test Meter (Citizenship)	22.95
Batteries: X045 or 467, 45V	3.80
XX30 or 488, 30V	2.40
9F or 342, 15V	1.35
U15 or 412, 22½V	1.80
0-1 MilliAmmr 4.95 0-50	3.95

ATTENTION ALL R/C FANS!
FREE AHC "BARGAIN-BULLETIN"
Ask for Bulletin "RCB". Lists many, many big bargains. Send a self-addressed, stamped envelope for your FREE copy.

America's Hobby Center, 146 W. 22nd St., N. Y. 11, N. Y.

USE HANDY AHC ORDER BLANK NEXT PAGE ➡

HALF PRICE BABCOCK Sale

AHC SAVES YOU 50%
ON THESE TOP QUALITY, E-Z TO OPERATE
"BABCOCK" R/C INSTRUMENTS

2 CHANNEL 465 mc.
Transmitter BCT-7
By far the finest, most reliable unit made.
REG. 69.95 **34.95**

R/C Fans! Here's your chance to own the "Cadillac" of R/C equipment at tremendous savings. The BABCOCK BCT-7 is the world's finest modulated multi-channel UHF frequency transmitter . . . FCC type approval #CR425. Features include: High frequency 6 and 7 Kc. modulation. 3 element antenna for super-radiation efficiency included at no extra cost. Built-in voltage indicator. Convenient hand-held size . . . 9¼x6¼x3. Both channels can be operated simultaneously or independently. Fully factory assembled and tested. This is the Brand New 1959 model . . . and quantity is limited! Order this AHC super bargain now . . . while the supply lasts!

2 CHANNEL TONE RECEIVER BCR-7A
REG. 69.95 **34.95**
465 mc.
Companion for Transmitter BCT-7 (on sale above)

NO TUBES! COMPLETELY TRANSISTORIZED!
The finest, most reliable, most sensitive precision unit you can buy. Features a new advanced circuitry that offers interference immunity. Uses the famous BR-3 type sensitive relay. Attractive hi-impact plastic cover. Independent or simultaneous control of both channels. Light in weight (6 ounces). Simple to install. Simple to use. Antennas plus full installation instructions and diagram included. Fully factory assembled and tested.

SINGLE CHANNEL RECEIVER . . . REG. $30.95 19.95
465 mc. BABCOCK BCR-8 (Choice of 5 Kc. or 7 Kc.)

ORDER BOTH
Receiver and Transmitter and get any $5.00 R/C
MODEL FREE

Any model you want . . . Up to $5.00. If model sells for over $5.00, just take a $5.00 credit and remit the difference with your order. (For example, if model sells for $6.95, all you send is $1.95 — when you order a Babcock sale outfit).

LOOK

Place Your Order FOR THE NEW, FABULOUS **FOX .099** only **4.95**

We're taking advance orders right now! We saw a preview of the Fox .099 engine recently — and it's terrific! At $4.95, we predict they'll be sold out quick. We suggest you send your order to us immediately. We'll reserve your engine and ship it as soon as received!

ON SALE **"HI-PULSE" Jet Engine**

$32.95 VALUE **19.95**

Super bargain! Big 3½ lb. thrust. Size: 21¾" long, 2½" diam. Weighs 14 oz. Order this AHC special while the supply lasts!

USE HANDY AHC ORDER BLANK NEXT PAGE ➡

America's Hobby Center, 146 W. 22nd St., N. Y. 11, N. Y.

Shop AHC For SERVICE — $AVE AT AHC

Bargains

$AVE — and Largest SELECTIONS — $AVE AT AHC

COMPLETE FLYING OUTFITS

FREE BONUS OFFER

Free of extra cost with every plane and engine.

Buy your engine and plane from us at the same time and get all your access'ories free!

STANDARD MODEL ONLY — Correct Size Finished Propeller — Insulated Ignition Wire — Insignias — Giant Book on Construction — How to Build and Fly Them — Cement — Sandpaper — Metal Bellcrank with Bolt, Nut and Washer — Elevator Horn — Elevator Hinges — Lead-in Wire — Push-Rod Wire - U-C Handle - Control Lines - Ownership Decal

STANDARD MODEL ONLY — Engine Handbook — 18" Giant Book on Construction — How to Tune and Fly Them — Sandpaper — Elevator Horn — Elevator Hinges — Push-Rod Wire - U-C Handle - Control Lines - Ownership Decal

NOTE: You may substitute any plane or engine of equal value for any plane or engine included in these offers. Choose from the listings in the first AHC ad.

2 PLANE OUTFIT

Believe it or not! 2 COMPLETE PLANES Make and fly BOTH these 18" profile models

PLUS ACCESSORIES AND BONUS EXTRAS

BIG $10 flying outfit FOR ONLY 5.99

With Cub .049 $7.39

BIG $10. VALUE

NOW ONLY $7.50 with Atwood .049 Engine

PLUS ENGINE or With O.K. Cub .049 Engine $8.50

ATWOOD .049

PLUS ACCESSORIES AND BONUS EXTRAS

Take your choice of one of these ideal U-Control prefabricated easy to assemble and fly! models. Each is a completely

X-15 RACER

BRITISH S.E. 5

SUPER STUNTMASTER

F-51 MUSTANG

CHIPMUNK

DELUXE BASIC TRAINER

FREE FLIGHT OUTFIT

DELUXE $15.00 OUTFIT $8.95

FAMOUS CONTEST MODEL

AMAZON "400" 62" SPAN

PLUS

MEETS F.A.I. and A.M.A. RULES

Thoroughly tested and contest proven! AHC brings you this sensational Free Flight outfit . . . and we're bargain priced it, too! The "AMAZON 400" is light, rugged and efficient . . . designed to exact every inch of altitude possible for its thermal soaring glide. Kit is all pre-fabricated . . . with selected balsa and plywood parts and full size thoroughly detailed plans.

NEW & POWERFUL FOX .15 ENG. & COMPLETE AHC BONUS EXTRAS, F.F. ACCESSORIES, ETC. . . . WORTH MANY $$

COMPLETE JET OUTFIT

DELUXE OUTFIT ONLY $2.95

The hottest Jet Flying Outfit you can find! Scale models have realistic shaped fuselages, etc. — NOT flat profiles! E-Z to assemble. Anyone Can Fly!

CHOOSE ONE PLANE

12" SPAN — DOUGLAS SKYROCKET

15" SPAN — F-86D SABRE JET

PLUS JET ENGINE & SUPPLY OF SOLID FUEL CHARGES

PLUS Catapult Launcher, All Accessories & Finishing Items. 100% Complete Outfit.

ORDER ANYTHING IN THIS MAGAZINE HERE

Olympia Runabout Powered speedboat for elec. motors or Outbd. 18" Long, 7" Beam. Prefabricated kit. REG. 4.95 $1.95

FOX .29 We have a limited quantity of this famous eng. on sale! Reg. 15.95 11.95

Famous "PACTRA" AEROGLOSS Special buy! 12 oz. Spray cans in choice of Red, Cream, Blue or Green. Terrific for finishing models. Limited! Reg. $1.79 98¢

Regularly 66c to 95c EACH FUEL TANKS 3 for $1 — Grab-Bag Special! Assortment of famous brand tanks . . . square, round, wedge, etc. Our choice of shapes. Your choice of ½A, A or B

While They Last! FAMOUS O&R .23 ENGINE Reg. $11.95 $6.95

"AERONCA" 18" span U-Control model for any ½A eng. (.020 to .074). Plastic fuselage, pre-built wing & all prefab parts. REG. $2.95 1.39

15 DECAL PICTURES Assorted. Perfect for dressing up your models. $1.80 Value FOR ONLY 98c

Choice of Jet or Std. SCALE TEAM RACER PLASTIC PILOT HEAD 39¢ Reg. 75c — ⅜" Wide 2⅝" High

FULL SIZE Scale Plans Solid models like: P-51, B-36, Focke Wulfe 190, B17S, Spitfire, B-26, Kingfisher, P-38, etc., etc. Scale Plans w/3 view drawings, etc. We'll send you an assortment for only — 15 for 49c

RUBBER WHEELS 1" Pr. 10c (3 Pr. 25c) — 1¼" Pr. 15c (3 Pr. 35c) — 2" Pr. 20c (3 Pr. 45c) — 2" Race Car Wheels ½" Wide — Reg. $1.50 SET OF 4 .... 50c

FAMOUS BRAND O & R PROPS Reg. 35c or 45c Ea. 10 FOR $1 — 60 for $5.00 — 7-7; 8-7; 8-8; 8-9; 8-10; 9-6; 9-10; 10-4; 11-4; 11-7; 11-10; 12-9; 13-8; 14-8; 14-6

Glo Plugs Reg. 65c 49¢ 3 for $1.00 — An AHC Super Value! Specify Long or Short Threads

SALE

ALL IMPORTED MODEL Prices Reduced

MOST MODELS IN STOCK . . . NO RESERVE SHIPMENTS WEEKLY . . . SLIGHT DELAY ON SOME MODELS WHEN SOLD OUT DUE TO BUSINESS THIS WAY. ANY GUARANTEE OR SATISFACTION.

	REG.	SALE
SA-16 Albatross 53" (2) .19-.35	$25.95	$19.95
Beech Bonanza 34" .19 to .35	10.00	7.95
F-8-F Bearcat 36" .29 to .35	10.00	7.95
B-29 Boeing 48½" (4) .09 to .15	29.95	19.95
B-29 Boeing 84½" (4) .19 to .29	39.50	27.95
B-36 Convair 113" (6) .19 Eng.	59.50	34.95
C-46 Commando 62" (2) .19-.35	29.95	19.95
F-4U Corsair 31" .29 to .35	10.00	7.95
C-47 Douglas 48" (2) .15-.19	24.50	19.95
DC-6B Douglas 71" (4) .19 Eng.	47.50	34.95
FW190 Focke Wulf 36" .29-.35	10.00	7.95
ME109 Messerschmitt 36" .29-.35	10.00	7.95
P-51 Mustang 36" .29 to .35	10.00	7.95
L-17 Navion 32" .19 to .29	10.00	7.95
AD-4 Skyraider 36" .29 to .35	10.00	7.95
Super DC-3 61" (2) .19 to .29	29.95	19.95
C-45 Beechcraft 55" (2) .19-.29	$28.00	$19.95
B-26 Invader 57" (2) .19 to .29	29.95	19.95
B-26 Invader 46" (2) .15 to .19	19.95	12.95
F-100 Super Sabre 22" Tiger Jet	24.50	14.95
F100 Super Sabre 27½" Dyna Jet	29.95	18.95
F-86 Sabre Jet 26" Tiger Jet Eng.	24.50	14.95
F-86 Sabre Jet 36" Dyna Jet Eng.	29.95	18.95
F-94C Starfire 31" Tiger Jet Eng.	19.95	14.95
MIG-15 24" Tiger Jet Engine	23.50	14.95
MIG-15 33½" Dyna Jet Engine	29.95	18.95
F-84 Thunder Jet 37" Dyna Jet	33.50	18.95
F-9-F Cougar 32½" Dyna Jet Eng.	29.95	18.95
Zero Fighter 34" .29 to .35	10.00	7.95

ALL IMPORTED ENGINES, TOO!! WRITE FOR COMPLETE LIST.

AHC ELECTRIC OUTB'D. MOTORS 3 to 6 volt takes up to 24" boats. A Terrific Bargain. Outb'd. Jr. Reg. $3.95 1.99 — Outb'd. Sizo Reg. $5.50 2.39

"Sea Scooter" REG. $7.95 4.95 — A terrific bargain! This hydro speedboat is 24" long, with an 11" beam. For gas or elect. motors or R/C. All prefab. w/mahog. exterior.

DOPE BRUSHES We made a special purchase and can offer you a real "buy" Asstd. sizes $3.00 Value 20 for $1.00

"MIGHTY MIDGETS" 3 rubber pwrd. models 14 - 18" spans "P - 10" "Dragon" and "Bandit" Reg. 59c ea. 3 for $1

DECAL BARGAIN Worth twice the price easy! You get 1 (3½") AMA Nos. & Alph; 4 U.S. Army; 6 Pictures; 2 Sheets Solid Color; 1 Sheet Checkerbd; 12 Asstd. Nos. & Alph; Plus Many, Many Bonus Decals & Tips & Hints on Use of Decals. Bargain $1.00

SKY-MATE REG. $2.95 $1.95 — A real bargain! This cantroline model powers with .049 to .074 eng. Prefab sheet construction. Now at Sale!

Spirit of St. Louis Special buy! Authentic scale U-C models. Prefab kits. Take your pick

24" MODEL for .09 to .15 Eng. REG. $2.95 1.95

32" MODEL for .09 to .25 Eng. REG. $4.95 2.95

PLIERS 75¢ EACH — FINEST IMPORTED — Choice of: Rd. Nose; Flat Nose; Diagonal Cutter; Snips or Combination.

Bill Winter's Model Aircraft "Fun Book" 132 pgs. of plans (6 Gas, R/C, Rubber, etc.). By famous designers. Reg. $1.00 50c

GLUE TUBE NOZZLE REG. 55c 19¢ — An AHC super buy! It fastens easily to top of tube. Special threads or nozzle can't clog or thread. For canopy, cowl or wing attachment & most to every modeler.

SILK or NYLON Finest quality. Silk colors: Yellow, Blue, Red or White. Nylon: Yellow or White Reg. $1.50 a yd. 98c yd. — Checkerboard Silk Reg. $1.98 yd. — 1.49

AHC PARTS BOXES. Transparent plastic with hinged tops. 1¾ x 2¾ x ⅝" high. Ideal for small parts storage. Reg. 18c each. 6 for 50c

MODEL BUILDERS Aluminum Block PLANE Reg. 60c. With hardened 1" steel cutter. 3½" long. A real bargain! 29¢

"FOUR BULLETS" REG. $2.50 — 1½A sport & team race model. 4 designs in kit. Formerly sold at $2.50. Fly the one you want. 1.89

BWM .15 DIESEL ENGINE "Nationals" Contest Winner. Fast starting, high precision diesel eng. Terrific Performance. Power: 23 hp at 12,000 rpm. On Sale! Reg. $13.50 7.95

MODEL BUILDER'S BARGAIN TOOL KIT REG. $1.79 98¢ — A real bargain offer! Consists of Exacto Knife, Modeler's Saw, Balsa Stripper, Needle File, Sandpaper. Screwdriver. This is a must outfit for every modeler!

SOLDER 10¢ — **SOLDERING IRON** Ideal for all model work. Reg. $2.25. A Real buy at only $1.29

ELECTRIC MOTORS . . . U.S. made 1"x1 9/16" high. Reg. $1.90 $1.25 — Imported Motors, 2½ to 3 Volts. SPECIAL 89c

HOW TO ORDER

Please Print Your Order! Send payment in full. Sorry, No C.O.D.'s. Include 25c extra if order is under $2.00. Foreign Modelers—See instructions on left.

AMERICA'S HOBBY CENTER 146M West 22nd St., New York 11, N. Y.

AHC E-X-P-A-N-D-S! Send your order to our new, larger building. Now, modern set-up speeds your orders back FAST!

PLEASE PRINT

Name _____

Street Address _____ Amount Enclosed _____

City _____ Zone _____ State _____

Quantity	Cost Each	Name & Description of Items	Total
		Total	

IF ORDER IS UNDER $2.00, DON'T FORGET TO ENCLOSE 25c FOR POSTAGE & PACKING

24 HOUR SERVICE AT ALL TIMES — Dept. M-98

ONLY 25¢ EACH

- ☐ WORKBENCH EDITIONS of the famous Winston books (Reg. $1.00 each) for only 25¢ ea.
- ☐ GLO ENGINE HANDBOOK. Tells all about the theory and operation of glo engines
- ☐ CONTROL LINERS. How to build and fly them. Covers subject from A to Z
- ☐ GAS MODEL PLANE CONSTRUCTION. The answers to every problem you will ever meet

CATALOGS

64 Pg. Airplane Catalog	25¢
Std. Models Catalog	10¢
64 Pg. Railroad Catalog	25¢

CALLING ALL N. Y. CITY MODELERS

VISIT OUR Hobby City 146 West 22nd St. New York 11, N. Y.

You'll find everything here . . . the world's largest stock — including the smallest engine parts. Experts on hand to help you!

Soldiers! Sailors! Marines! Orders placed through us get special attention. We understand your problems and take special care of your orders. No postage or packing charges on orders for over $2.

Canadians & Foreign Modelers! You save plenty by ordering from us. We accept your currency at current values. Canada—$1.00; Sterling—$2.75; B.I.—$2.50; Australian—$2.00; Philippine Pesos—$½; etc. Add 10% for postage and packing (minimum 50c).

24 HOUR SERVICE

SAVE TIME! USE THIS HANDY ORDER FORM

Everything carries the famous AHC Money-Back Guarantee!

GUARANTEED Safe Delivery Anywhere in the WORLD

DELUXE HOBBY CATALOGS

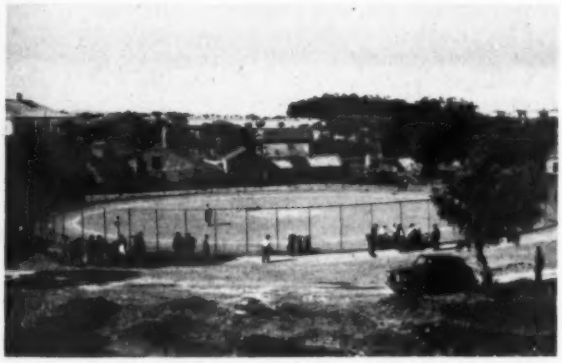
25¢ 10¢ — New, Giant 64 page "Silver Jubilee" Catalog. The most complete model reference source in the world. Thousands of Pictures! Over 10,000 items! 2 Colors! It has everything . . . every engine, every model . . . planes, boats, cars, rubber models display and plastic . . . tools, accessories, parts . . . just everything!

Fine jumbo catalog of thousands of hobby items: Planes, boats, cars, engines, accessories, solids, gas, rubber.

25¢ — 64 page 2-color RAILROAD catalog. HO & TT gauge . . . over 4000 items, fully illustrated! loads of data, etc.

. . . the Los Angeles Story

Paradise, a 2000-acre spot behind flood-control Sepulveda Dam. Future plans hope for food service and picnic area for modeling families.



The Lord giveth . . . a thruway would run through beautiful control-line area in Griffith Park. Model Airport plans three circles.

A 200-foot long, 75-foot wide asphalt runway for RC. To present four 40-foot free flight asphalt circles, eight more to be added.

by KEN WILLARD

Said the modelers, "You are in charge of recreation, this is our recreation, we are citizens . . . entitled to consideration." To the City of Los Angeles this made sense.

Capital improvements for the Model Airport required the hobbyists themselves to raise funds. To LA modelers this sign means plenty.

► Too many large metropolitan areas faced with the admitted annoyance caused by the drone of U-control engines, the occasional trespassing of a free-flight modeler retrieving his model, and sometimes the property damage caused by a heavy radio-controlled model, have taken the easy way out and say in so many words "No more model airplanes in this city."

Contrast this, if you will, with the situation in the City of Los Angeles, Calif., where city government approached the knotty problem with a reasonable attitude. The "LA" story is one which other large cities well could review and follow as an outstanding example of the way to encourage the youth to enter a career in aviation, and to keep the kids off the streetcorners.

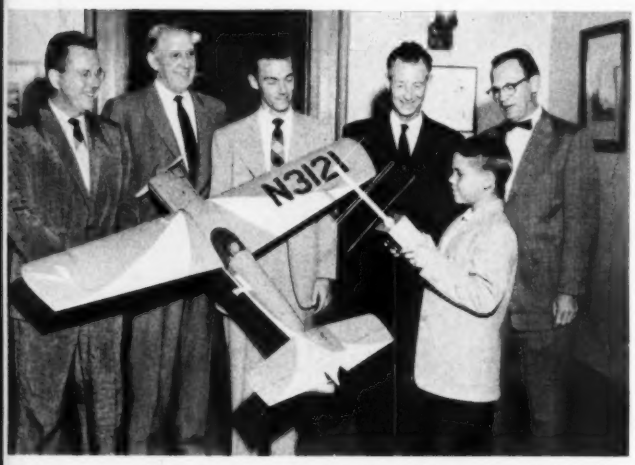
In the early 1930's, when model aviation consisted largely of rubber-powered models and gliders, Los Angeles probably had the largest amount of wide-open country land within the city limits of any city in the world. Many of us can remember with amusement signs "Los Angeles City Limit" posted in a remote country lane or mountain pass.

About the time Maxwell Bassett (1932) astounded the modeling world with his successful gas-powered model airplanes, new factories and homes began to close down these open spaces. Gas-powered models needed space but space was becoming a premium item. The model enthusiasts would have to go elsewhere to fly. The City takes such things seriously. *(Continued on next page)*

The Los Angeles Story—*Continued*

The Department of Recreation and Parks considers many things in allotting facilities, such as the area requirements in relation to the number of citizens engaging in the activity, the cost of the required facilities, the supervision required for orderly recreation, and so on. For model airplanes, a fairly sizable area was a requirement for free flight, and lately for radio control. The amount of space necessary divided into the number of modelers using that space, at first appeared prohibitive. For control line model enthusiasts, noise was a problem. Protective measures for spectators were a must. So far, it was the old, familiar story.

Modelers would find an open area, citizens would complain, the police would run the modelers out, and an ordinance would be passed prohibiting flying in that area, and the modelers would seek other flying sites. But some modelers said to the Department of Recreation and Parks "you are in charge of recreation, and this is our recreation, and we are citizens and we feel that we are entitled to consideration."



George Hjelte, Gen. Mgr., Dept. Parks and Recreation, 2nd, L; Lloyd Braff, Dir. Traffic Dept., R, see RC demonstrated. The author, L.

William Frederickson, Supt. Dept. Parks, L, and Hjelte, on his L, dedication ceremonies. Walt Robertson, LA Hobby Assoc., 2nd R.

Guiding RC model is Colby Evett, Willard on the PA system. Top officials, Frederickson and Hjelte, came, saw, went away pleased.

Mr. George Hjelte, General Manager of the Department, agreed. He instructed his Superintendent of Recreation to see if a solution could be found. The Department, in turn, asked, "What do you need?"

Joe modeler, unfortunately, is an individualist. In a club, he may not see eye to eye with other members as to what the modeler needs. In an area like LA, where there are many clubs, a terrific hassle developed every time a group of modelers tried to say "this is what we need." One group, the Los Angeles Model Hobby Association, not only considered the wants of the model aviation fraternity, but also model railroading, race cars, and boats. A Department of Recreation and Parks representative sat in on regular scheduled meetings that discussed requirements and possible solutions.

Older readers will recall the stories of model activities at a model flying field known loosely as "Western and Rosecrans." Here, the modelers made a leasing agreement for the field, operational expenses being defrayed by means of parking fees. The field was engulfed by factories. This had been under discussion with the Department. One possibility showed promise.

In the northwest part of Los Angeles, the Federal Government had built a flood-control basin known as Sepulveda Dam. Over the years as additional flood control projects were completed, a complete inundation in the Sepulveda Basin became unlikely. However, because of the possibility of flooding, a 2,000 acre area which could not be used for residential or industrial purposes, was being farmed.

The Department made a lease agreement with the Federal Government whereby, over a period of time, they would utilize the area behind the Sepulveda Dam for recreational purposes. But, until such time as they had the funds to do what they wished with the area, the Department subleased it for farming. One portion was set aside as a golf course, for which funds would be available. Another portion was set aside for model flying. Lacking funds, but this was to be farmed as well.

So the modelers "appropriated" the undeveloped golf course. The farmers were unhappy. Modelers tramped down the crops. The modelers were unhappy. Irrigation made it pretty sloppy to retrieve a model. But, for a precious year, the free flight modelers did use the undeveloped golf course.

Meanwhile, back at the ranch, the Model Hobby Association and the Department developed a control-line flying site in Griffith Park. Paved circles were laid down, a high chain link fence was put around the area, and the ukie flier had a home. But nearby residents complained about the noise so scheduled times for flying were set up and a method of muffling the engines was devised.

Naturally, this "happy" state of affairs could not last. The golfers who were contributing for the course in the Sepulveda Basin had enough in green fees so that development of the golf course could proceed. When the City told the modelers that they would have to discontinue their free flight activity in the golf course area, the modelers childishly went into a tizzy.

A mass meeting was called to discuss ways and means of forcing the City to provide a place to fly. Irate letters were sent to the Department. All this, before anyone contacted the Department to explore other possibilities.

Realizing that the Department was in reality being attacked without cause, more level headed modelers arranged another meeting. (*Continued on page* 52)

.....the Danbury Story

After school, a youthful group builds Speedee-Bilts. These models to be judged on construction and finish at one of periodic meets.

by BUD BURDICK

Younger classes learn from ground up, from the Jetco ROG, Goldberg Ranger, Speedee-Bilts, to

Senior class instructor explains RC. The older boys build Veco stunt ships at evening classes.

Half A gas models—trainer and stunt. Standardization of models, regular contests, key points.

In this Connecticut city, the War Memorial Building asked the local hobby shop to set up classes with exciting results.

So busy are these senior lads, that all ignored the camera. And obviously ignore street corners. In some towns modelers "nuisance."

► In 1957, Arthur J. Hurley, Director of the War Memorial Building in Rogers Park, Danbury, Conn., asked the Hobby House to run model-building classes. The Memorial provides recreational activities for children and adults. When questionnaires were given to the school children, over 100 showed interest.

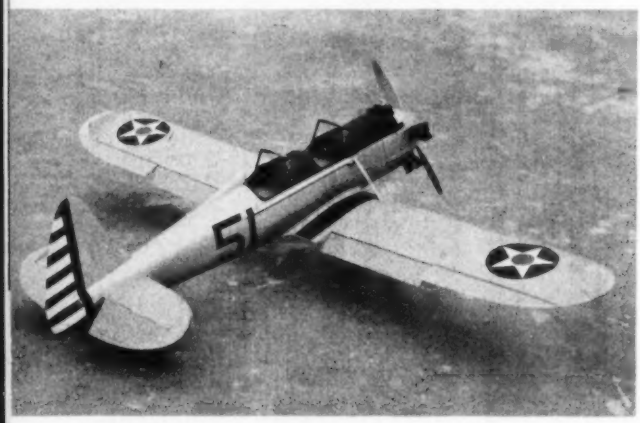
The local newspaper, the Danbury News-Times, gave organizational meetings good advance publicity. Two groups were set up. Three afternoon classes for the younger boys would run from October to June, daily after school, from 3:15 to 5:15.

The older group, principally composed of high school boys with some building experience, met on Wednesday nights from 7:00 to 9:30 p.m. (Actually, any gas modeler is welcome.) Its first project was a choice of any Veco stunt ship, so the instructor would not be confronted with a variety of types of construction.

The second project is the "Sharpie" (a free-flight from MAN plans), to give the boys something different to fly, and to teach them how to build from scratch. It is important to teach how properly to build and fly gas models.

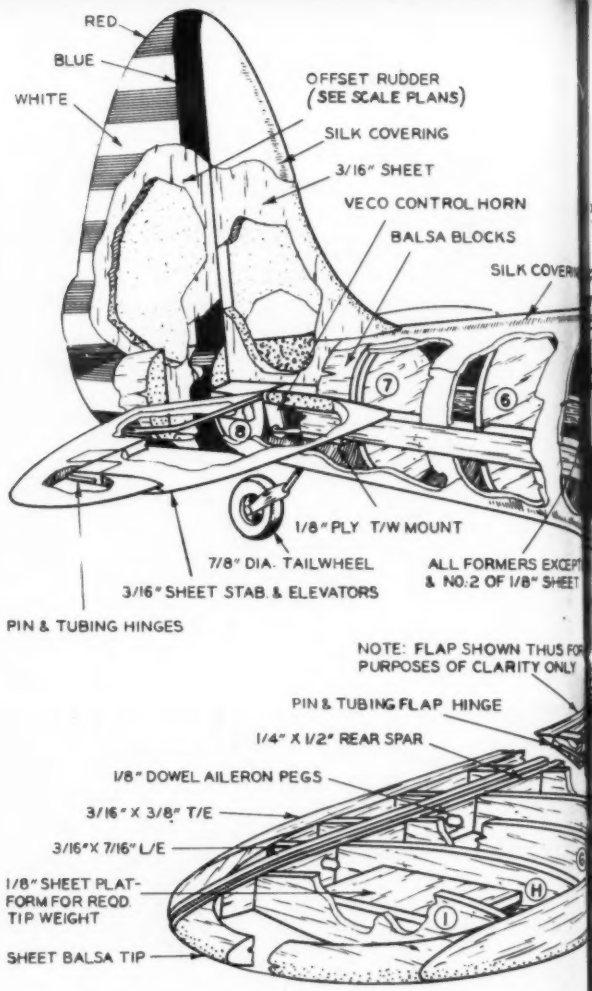
Youngsters in the afternoon classes would be taught building and flying from the (*Continued from page* 51)

A "happy" airplane, PT-22 combines racy lines, cylinder heads, wires, struts and gay Army markings for truly refreshing project.



Working wing flaps and a positive engine control are good for an additional 30 points at any contest. Rudder stripes, stars, boy!

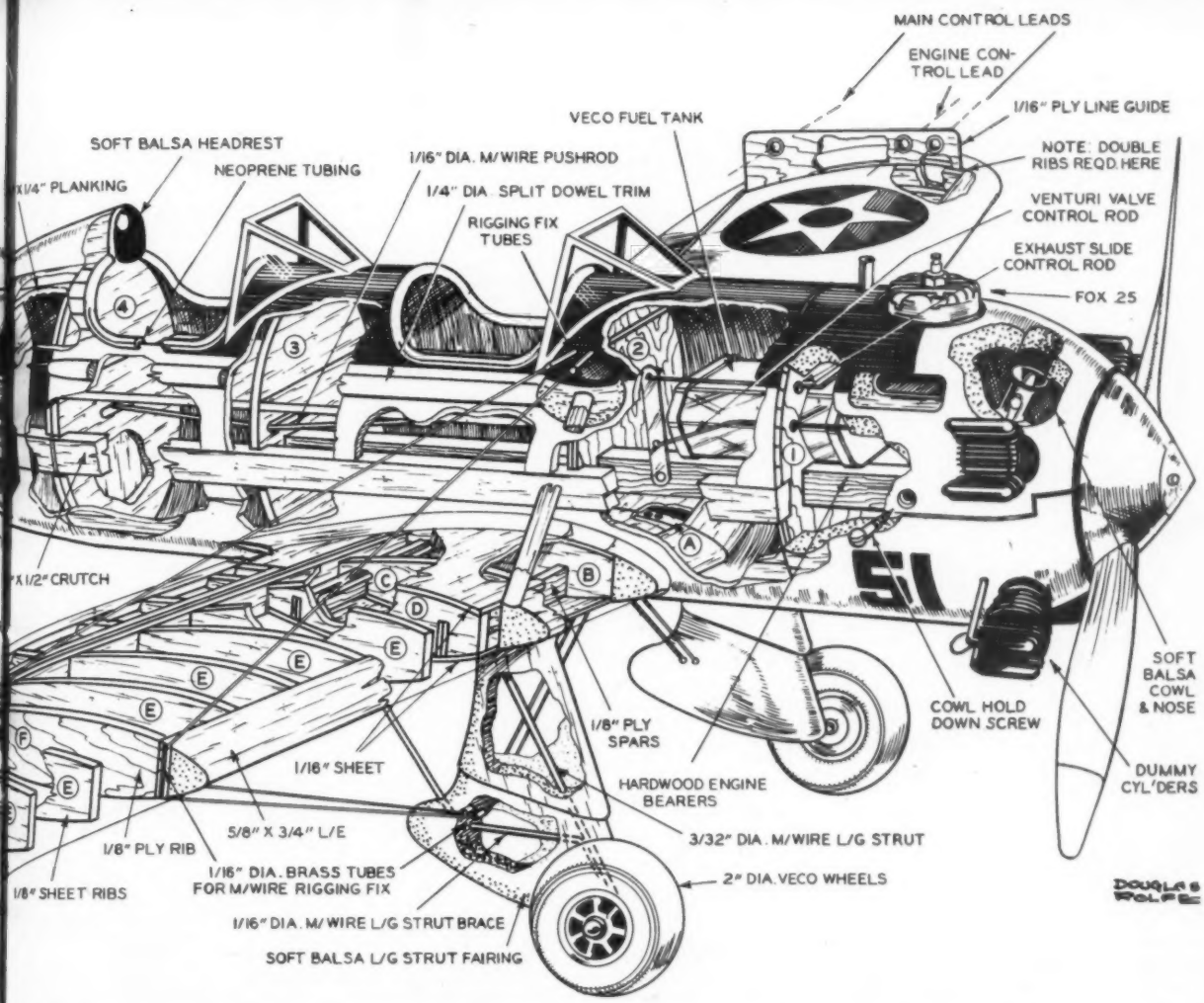
First cousin to the familiar in-line Ryan, the PT-22 has an air-cooled engine, of course, as well as graceful looking sweepback.

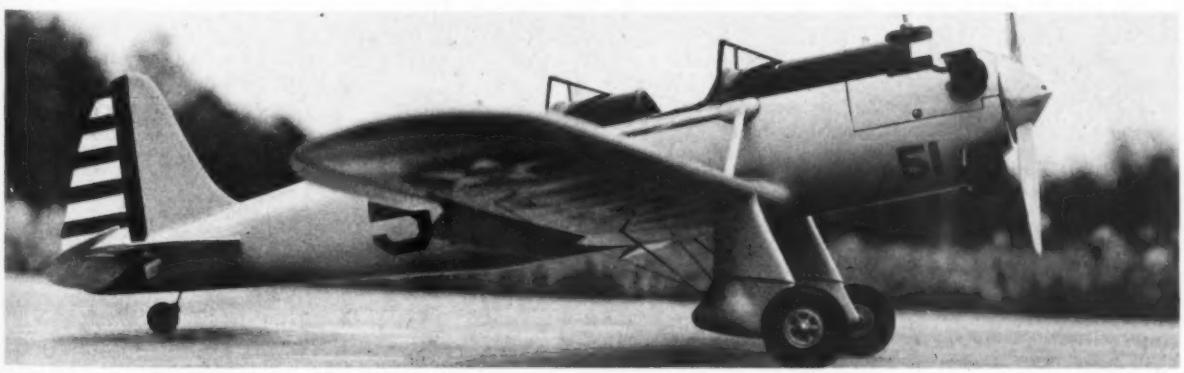


Ryan PT-22

by FRANK W. BEATTY

Famed trainer makes delightful control-liner for .23 to .25 engines. Reliable throttle and flaps enable you to fly it just like real ship. "Drag" it in, land, pour on the coal, climb on out. Living!



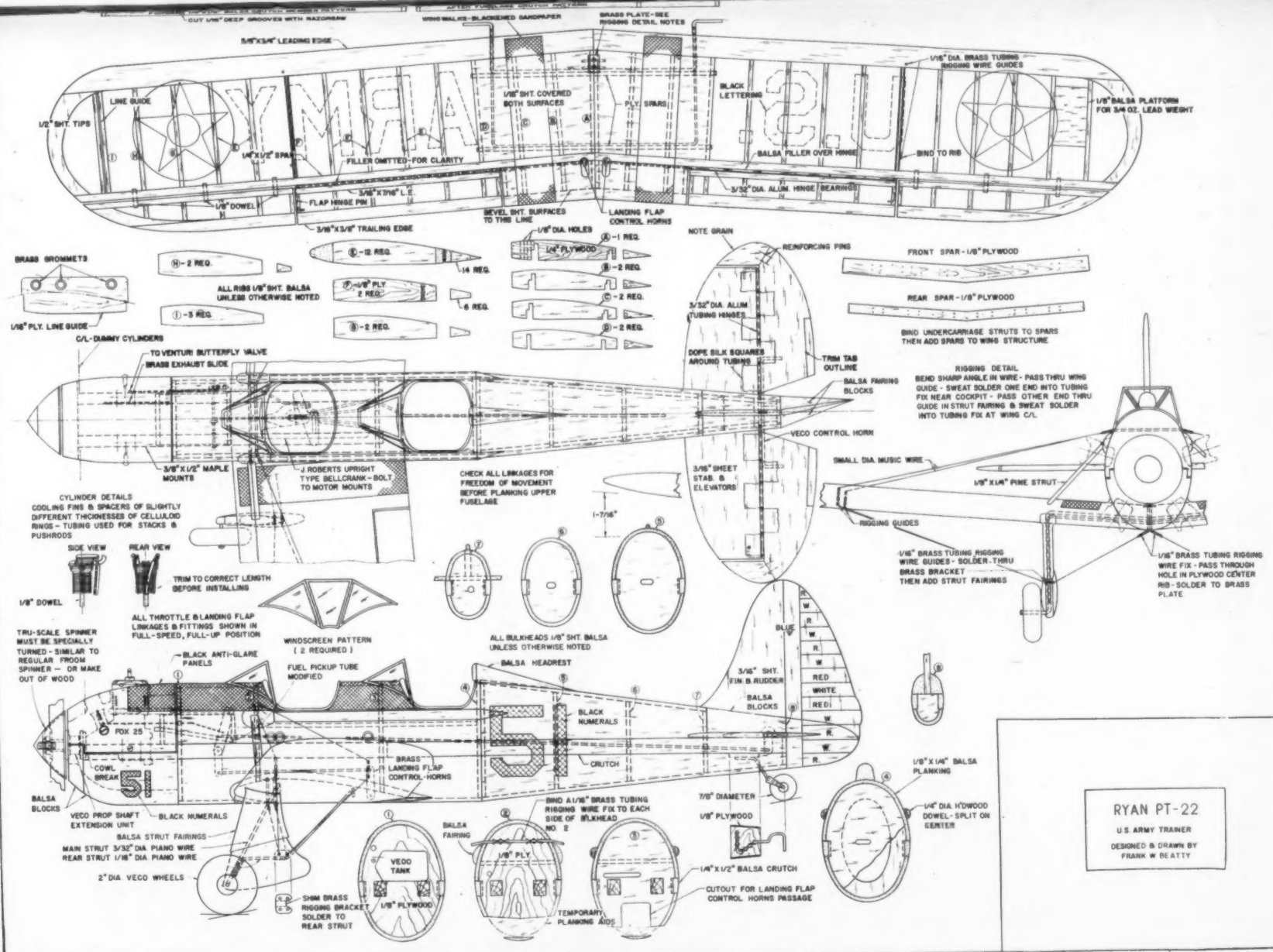


Real? Why, if a model railroader built this one, he'd wear helmet and goggles and yell contact every time he flipped that propeller.

► The fuel and batteries were tossed in the tool box, the tool box was in turn tossed in the Chevvy and I started home from the last scheduled contest of the 1957 season. My scale model had done well that season, but her original lustre was fading. Without new equipment, 1958 would be a slaughter.

Looking ahead to the 1958 season, it was felt that in control-line flying scale competition the extra flight points would be the key points, the difference between victory or defeat. Accordingly, it was planned that the Ryan PT-22, chosen as my 1958 contest model, would have a throttle-control arrangement and working landing flaps. Successfully demonstrating the throttle and flaps, and taxiing a lap, promised a possible 30 points, a maximum point potential with a minimum of complicated linkages and fittings. In the past, the complicated and often unreliable electrically or spring-loaded third line methods of controlling these operations had discouraged this writer from trying these things. But the simplicity and complete reliability of the J. Roberts flight control (*Continued on page* 58)

PLANS ON NEXT PAGE

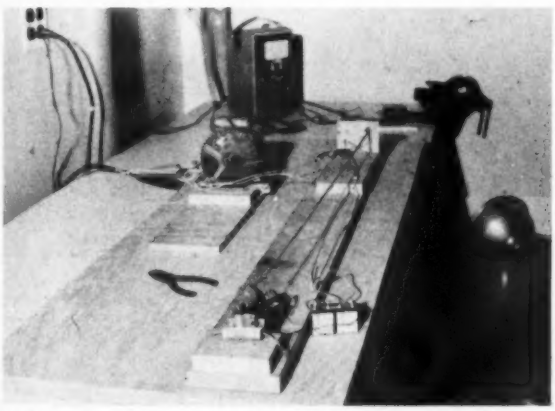

RYAN PT-22
CUT 1/16" DEEP GROOVES WITH RAZOR SAW
WING WALKS - BLACKENED SANDPAPER
BRASS PLATE - SEE RIGGING DETAIL NOTES
5/8"X3/4" LEADING EDGE
1/16" DIA. BRASS TUBING RIGGING WIRE GUIDES
LINE GUIDE
1/2" SHT. TIPS
1/16" SHT. COVERED BOTH SURFACES
PLY. SPARS
BLACK LETTERING
1/8" BALSA PLATFORM FOR 3/4 OZ. LEAD WEIGHT
1/4"X1/2" SPAR
FILLER OMITTED - FOR CLARITY
BALSA FILLER OVER HINGE
BIND TO RIB
3/16"X7/16" L.E.
FLAP HINGE PIN
1/8" DOWEL
3/32" DIA. ALUM. HINGE BEARINGS
BEVEL SHT. SURFACES TO THIS LINE
LANDING FLAP CONTROL HORNS
3/16"X3/8" TRAILING EDGE
1/8" DIA. HOLES
1/4" PLYWOOD
A - 1 REQ.
B - 2 REQ.
C - 2 REQ.
D - 2 REQ.
NOTE GRAIN
REINFORCING PINS
FRONT SPAR - 1/8" PLYWOOD
REAR SPAR - 1/8" PLYWOOD
BIND UNDERCARRIAGE STRUTS TO SPARS THEN ADD SPARS TO WING STRUCTURE
BRASS GROMMETS
H - 2 REQ.
G - 12 REQ.
14 REQ.
ALL RIBS 1/8" SHT. BALSA UNLESS OTHERWISE NOTED
F - 1/8" PLY. 2 REQ.
6 REQ.
1 - 3 REQ.
E - 2 REQ.
1/16" PLY. LINE GUIDE
C/L - DUMMY CYLINDERS
3/32" DIA. ALUM. TUBING HINGES
DOPE SILK SQUARES AROUND TUBING
TRIM TAB OUTLINE
BALSA FAIRING BLOCKS
RIGGING DETAIL
BEND SHARP ANGLE IN WIRE - PASS THRU WING GUIDE - SWEAT SOLDER ONE END INTO TUBING FIX NEAR COCKPIT - PASS OTHER END THRU GUIDE IN STRUT FAIRING & SWEAT SOLDER INTO TUBING FIX AT WING C/L
TO VENTURI BUTTERFLY VALVE
BRASS EXHAUST SLIDE
VECO CONTROL HORN
3/8"X1/2" MAPLE MOUNTS
J ROBERTS UPRIGHT TYPE BELLCRANK - BOLT TO MOTOR MOUNTS
CHECK ALL LINKAGES FOR FREEDOM OF MOVEMENT BEFORE PLANKING UPPER FUSELAGE
3/16" SHEET STAB. & ELEVATORS
SMALL DIA. MUSIC WIRE
1/8" X 1/4" PINE STRUT
RIGGING GUIDES
1/16" BRASS TUBING RIGGING WIRE GUIDES - SOLDER-THRU BRASS BRACKET THEN ADD STRUT FAIRINGS
1/16" BRASS TUBING RIGGING WIRE FIX - PASS THROUGH HOLE IN PLYWOOD CENTER RIB - SOLDER TO BRASS PLATE
CYLINDER DETAILS
COOLING FINS & SPACERS OF SLIGHTLY DIFFERENT THICKNESSES OF CELLULOID RINGS - TUBING USED FOR STACKS & PUSHRODS
SIDE VIEW
REAR VIEW
1/8" DOWEL
TRIM TO CORRECT LENGTH BEFORE INSTALLING
ALL THROTTLE & LANDING FLAP LINKAGES & FITTINGS SHOWN IN FULL-SPEED, FULL-UP POSITION
WINDSCREEN PATTERN (2 REQUIRED)
1-7/16"
ALL BULKHEADS 1/8" SHT. BALSA UNLESS OTHERWISE NOTED
TRU-SCALE SPINNER MUST BE SPECIALLY TURNED - SIMILAR TO REGULAR FROOM SPINNER — OR MAKE OUT OF WOOD
BLACK ANTI-GLARE PANELS
FUEL PICKUP TUBE MODIFIED
BALSA HEADREST
3/16" SHT. FIN & RUDDER
BALSA BLOCKS
BLUE
RED
WHITE
RED
BLACK NUMERALS
FOX 25
COWL BREAK
BRASS LANDING FLAP CONTROL HORNS
CRUTCH
1/8"X1/4" BALSA PLANKING
7/8" DIAMETER
1/8" PLYWOOD
1/4" DIA. H'DWOOD DOWEL - SPLIT ON CENTER
BALSA BLOCKS
VECO PROP SHAFT EXTENSION UNIT
BLACK NUMERALS
BALSA STRUT FAIRINGS
MAIN STRUT 3/32" DIA. PIANO WIRE
REAR STRUT 1/16" DIA. PIANO WIRE
2" DIA. VECO WHEELS
BIND A 1/16" BRASS TUBING RIGGING WIRE FIX TO EACH SIDE OF BULKHEAD NO. 2
BALSA FAIRING
1/8" PLY.
1/4"X1/2" BALSA CRUTCH
CUTOUT FOR LANDING FLAP CONTROL HORNS PASSAGE
VECO TANK
1/8" PLYWOOD
SHIM BRASS RIGGING BRACKET SOLDER TO REAR STRUT
TEMPORARY PLANKING AIDS
RYAN PT-22
U.S. ARMY TRAINER
DESIGNED & DRAWN BY FRANK W. BEATTY

FULL SIZE PLANS AVAILABLE. SEE PAGE 60

DAWN TO DUSK

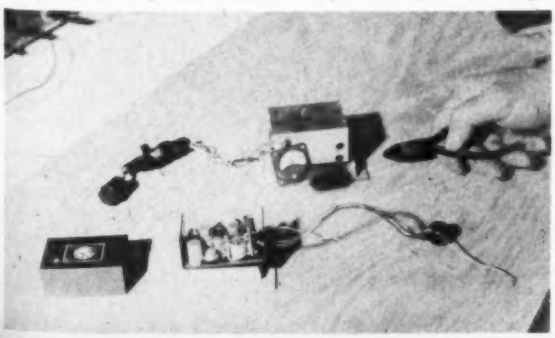
Overhead, the first of three test craft. Man himself weak link.

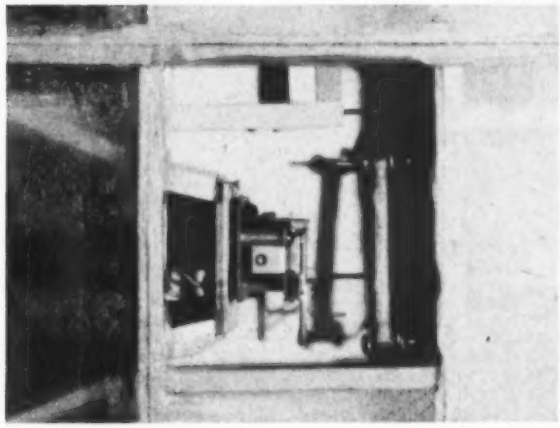
Typical system check: pulse, two secondary relays for left, right Bonner servo, single channel. Two VO500's, 6000 servo movements.



Rubber rewind test, with cam, low rpm motor. Worked 13 hrs. plus with Yardneys shown. However, rewinders eventually eliminated.

Typical receivers and batteries. Dry battery pack for ordinary flying but Yardneys and Voltablocs super durations, low weight.





An SN escapement, split yokes, connecting arm drive for spoilers.

by EDWARD J. LORENZ

In preceding issues, an "all-day" airplane, engine and fuel system were described. This issue rounds up the tests on radios, batteries. Final article to cover unique findings, possibilities, mistakes.

► *Receivers:* For such an ambitious project as a dawn to dusk flight, the receiver was of prime concern. It was, along with the batteries, the heart of the control system. At one time we were pretty sure a twin tuber, using the RK-61 and a tube or transistor in the second stage might be applicable. This was based on a low power drain set, compact size, light weight and a number of tests which showed that certain gas tubes were capable of performing reliably for 24 hours with no adjustments. However, the general run of gas tubes proved too erratic for this use.

A number of hard tube sets were checked and included the ESSCO THT, Babcock Magic Carpet, Wavemaster and several circuits we built up for the project. The main drawback to all of these sets, for this particular purpose, was the relatively high power consumption of both the filament and B supply. Towards the middle of our checking period the CG RT-1-3V came out and this looked like it might be the answer. It was light in weight, compact and completely transistorized. Furthermore it required but one battery for operation, and since it drew but 10ma when idling this was well within the current capacity of a wide range of batteries. The on signal current was about 40-50ma, depending upon the exact voltage used. A tester was set-up to give eight pulses per minute with a duration of four seconds each, thus giving an estimated 100% safety factor. The first CG receiver tested gave a ground range of 1000 feet with no trouble and at the end of 48 hours on test the original sensitivity remained. Testing continued for well over 300 hours, continuous duty; however, after about 200 hours sensitivity fell off to the point where it was not deemed reliable for this type of flying. The second CG receiver gave excellent range test results (2000 feet on ground) and no troubles were experienced with it.

The Ace TR-4.5 all transistorized receiver was received about one week before the first official flights were made and therefore tests were not completed in time for use in the record attempt. While (*Continued on page* 63)

the snipe

by DON GURNETT

No type of model comes closer to the majestic flight of soaring birds, says designer, of A-2's. High-aspect wing structural feat.

Combination of high performance, rough-air stability, plagues Nordic, or A-2, designers. This 94-inch sailplane makes an interesting, nice flying, solution.

► Probably no type of model can come closer to the majestic flight of nature's soaring birds than the A-2 Nordic glider. Perhaps this is the reason more modelers each year are applying their ingenuity to meet the interesting challenges which the A-2 gliders offer.

The design of a high-performance model that retains its performance in rough weather presents many problems. The Snipe was designed mainly for stability and wind penetration through the use of a high aspect (18 to 1) ratio wing. Span is 94 in., wing area 445 sq. in., stabilizer area 78 sq. in.

The high aspect ratio allows the use of a small stabilizer (18%) without making it necessary to have an ultra long tail-moment arm in relation to the span—an arrangement that probably would detract from the stability of the model because of its higher inherent inertia. The Snipe thus possesses a tail moment arm shorter than average, when compared to span. This arrangement also has the advantage of allowing the model to circle tightly in the area of a thermal.

Soaring birds, all of which possess extremely agile turning and circling flight characteristics, have a shorter tail-moment arm and higher aspect ratios than nonsoaring birds, further evidence of the soundness of the arrangement used in the Snipe.

The upper camber of the airfoil is that of the MVA 301 which was chosen because of its good all-around performance on gliders. The undercamber was designed with an entry angle of plus six degrees and a maximum height of 7% at 55% of the chord in an effort to produce the best rate of sink. A sharp leading edge creates the turbulation necessary for good stall stability, a critical factor in gusty air or in the turbulence of a thermal.

Due to the structural problems involved in high aspect ratio wings, the methods of construction and the materials used here are not conventional.

Birch long has been my favorite material for spars when considerable strength is required. It does not have the rigidity of some materials but can be flexed to almost any

And, like a bird, Snipe has short fuselage with long wing, allowing model to circle tightly in thermals. Span is 18 times chord.

degree without breaking, provided the grain of the wood is absolutely straight. The spars may be sawed; or planed down out of birch dowels.

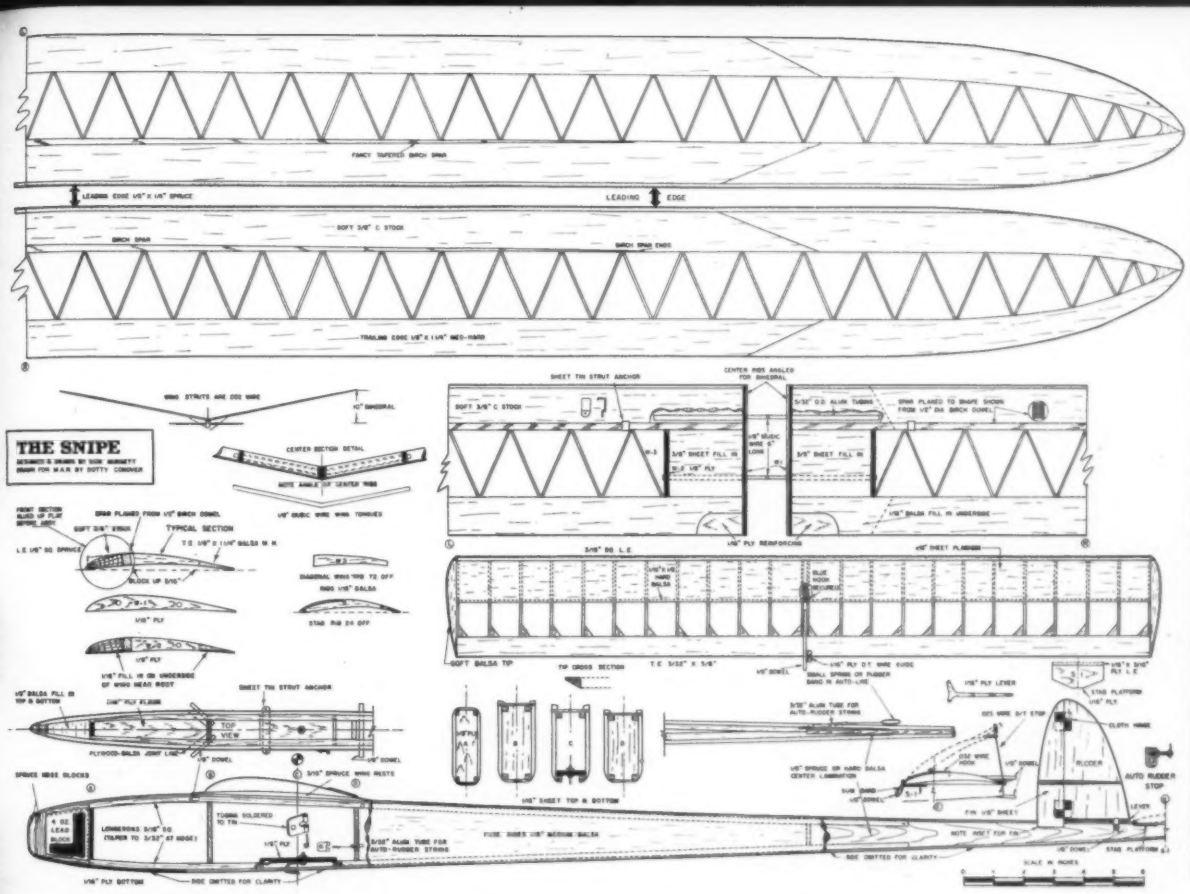
The solid leading edge makes the construction much easier than if ribs were used in front of the main spar, and the geodedic (diagonal) rib placement adds considerably to torsional (anti-twist) rigidity.

One-eighth inch music wire is used to join the two wing halves together and, to eliminate some of the upward flexing, 1/32 in. wire struts are used. These struts simply hook on to a sheet metal anchor on the fuselage and may be detached easily.

Choice of proper wood is essential as the weight at extremities, the outer portion of wing and the tail, must be kept at the very minimum as a high momentum of inertia would certainly result in a less stable model.

The solid-balsa portion of the leading edge should be light balsa, while the trailing edge should be medium hard

FULL SIZE PLANS AVAILABLE. SEE PAGE 60.



Spars cut from birch dowels, music wire through center section, give big wing its flexibility and strength. Uses wire wing struts.

C stock. In choosing the material for the spar, an effort should be made to find a ¼ in. birch dowel which has an absolutely straight grain. To shape the spar, one side of the dowel is planed flat using the top of a table as a guide. This side is then placed on the workbench and the opposite is planed flat and tapered as shown on the top view on the plans. The top and bottom are finished in a similar manner. Those who have access to a power saw will find this part simple.

After the solid-balsa portion of the leading edge is cut to the correct outline, the spruce leading edge and the spar are cemented in their correct position. The trailing edge is carved from medium hard C stock while the elliptical tip portion is light balsa.

The trailing and leading edge are then blocked up as shown on the plan and the wing is assembled in the conventional manner. Take special care to get good fits between the ribs and the spar. The wing leading edge is not carved to shape until after the ⅜ in. balsa filling around the wing root and the 1/16 in. ply ribs are in place.

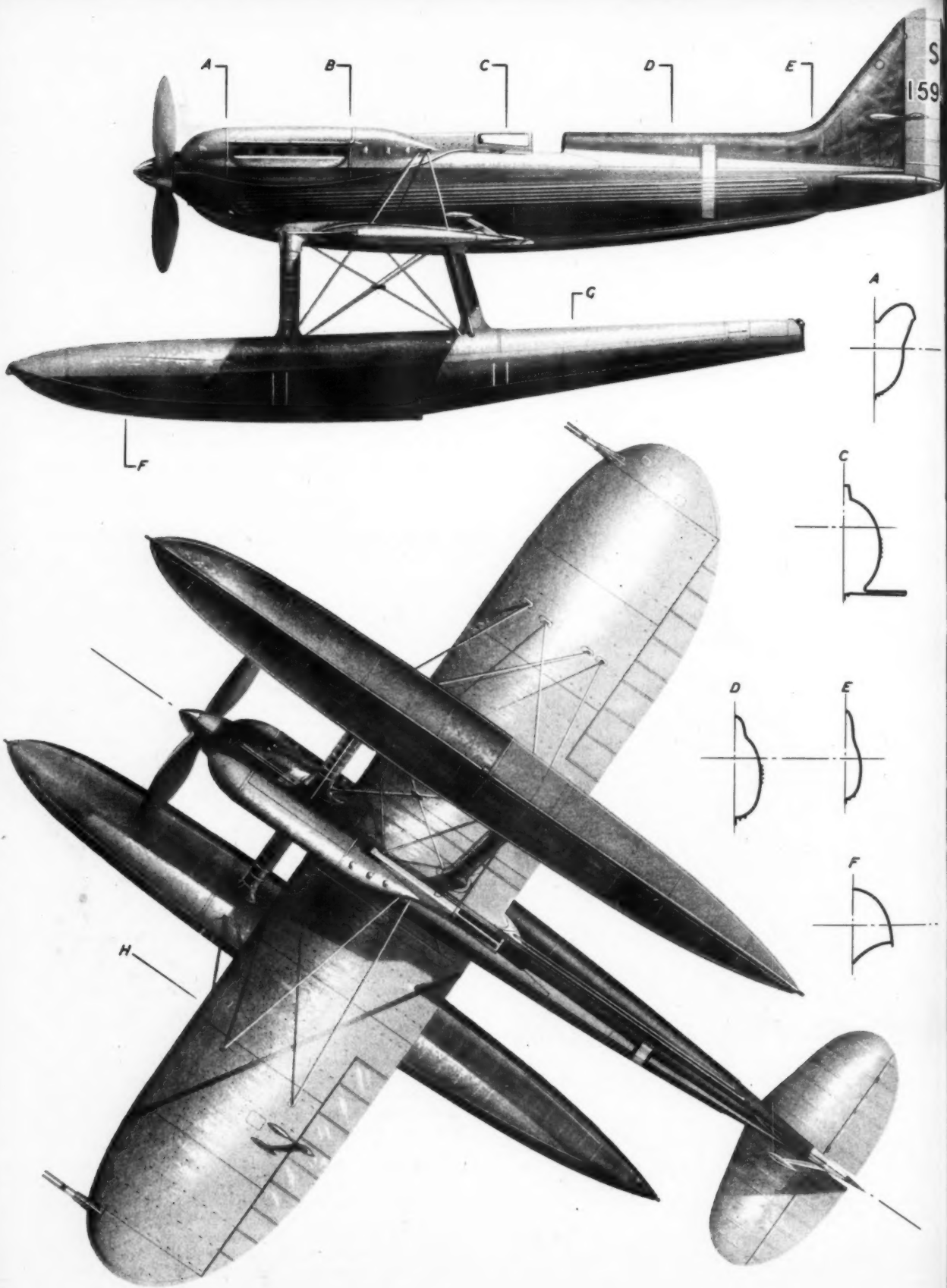
Fibreglass resin and silk may be used around the wing root to give added strength at this point. The original wing was covered with red Jap tissue with white tips and was doped while strapped on a board to eliminate warps.

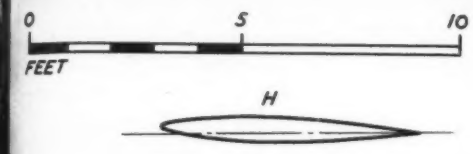
Construction of the fuselage and the stabilizer is conventional and no trouble should be encountered. The fuselage sides are ⅛ in. medium C stock while the fuselage tip and bottom are medium-hard 1/16 in. The tow hook is formed out of 1/16 in. music wire and is fastened to the ⅜ in. ply mount by a 4-40 bolt. An elongated slot in the ply allows the hook to be adjusted for the best tow.

The original fuselage was covered with silk, and fibreglass resin was used liberally around the nose and as far back as the trailing edge of the wing. This provides considerable strength in this area with little increase in weight.

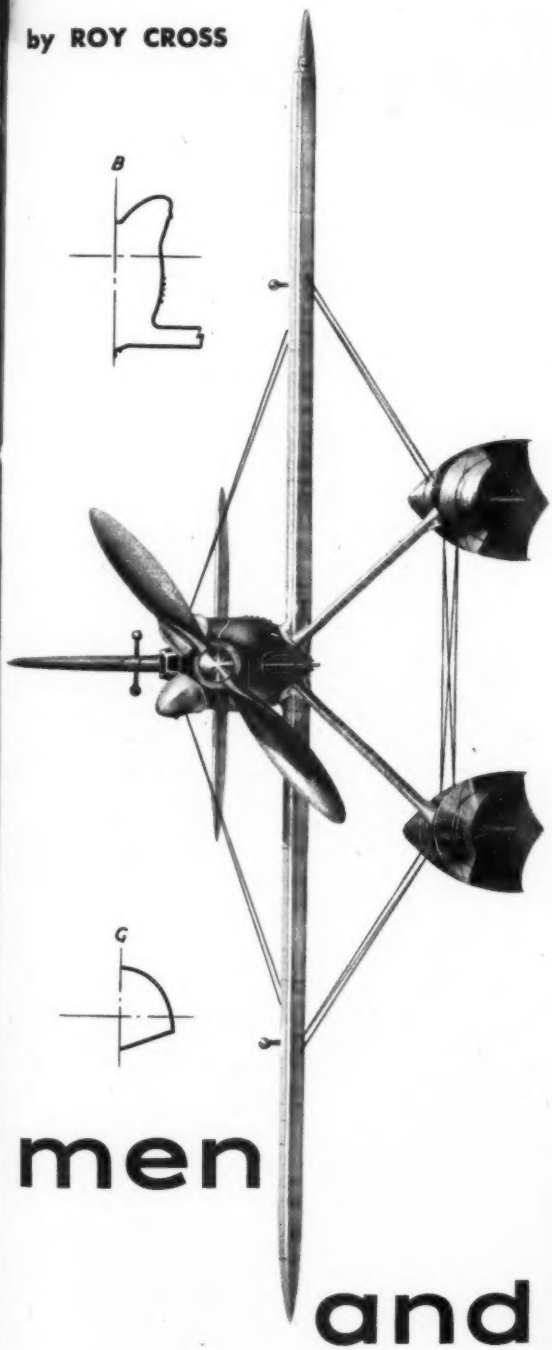
Auto-rudder stop is simply a 4-40 screw with a metal fitting on the end and is screwed in and out of the fuselage for adjustment. After the model is complete, lead ballast may be added to the nose to obtain the final center of gravity location as shown on the plans.

Before any attempt is made to adjust the model, it would be a good idea to carefully check it over for warps or other misalignments. (*Continued on page 42*)


A
B
C
D
E
S
159
G
F
A
C
D
E
F
H



by ROY CROSS



men and ships

F/Lt. George H. Stainforth, left, set world speed record, 407.5 mph with seaplane in 1931. F/Lt. John Boothman, right, retired Cup for England.

The Supermarine S.6B for the Schneider Trophy Races was a great aeronautical achievement. More than quarter century later, it still makes incredible story.

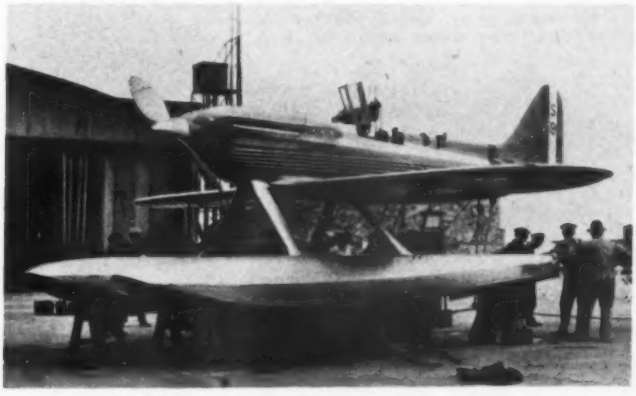
► One of aviation's most spectacular series of competitive events was the recurring contest for M. Jacques Schneider's 25,000-franc (in 1912) gold, silver, and bronze Trophy, offered for an international air race for seaplanes.

The first race was organized by France and took place at Monaco during the Hydro Aeroplane Competitions in April 1913. It was an entirely French affair since the only foreign competitor, C. T. Weymann from the United States, was flying a French twin-float Nieuport. Weymann looked to be a winner all the way until a broken oil line forced him down when only three laps from the finish. Provost actually won for France on his Deperdussin monoplane.

Britain had a brilliant victory in the 1914 race at Monaco, when Howard Pixton flew a seaplane version of the speedy Sopwith Tabloid biplane round the 150-sea mile, 28-lap course at an average speed of 86.8 mph.

The First World War caused the next event to be postponed until 1919. England, as holders of the Trophy, were the hosts on this occasion, and the race was flown offshore from Bournemouth over a longer, 200-sea mile, course. Heavy mist turned the race into a fiasco. Janello on the Savoia S.13 flying boat gallantly completed the distance but was disqualified because he had not been sighted at one of the markers. No other machine finished the course, so the race was declared null and void, although as some compensation to Janello it was (*Continued on page* 43)

Cooling the powerful Rolls Royce engine required oil radiators along fuselage side, coolant radiators on top of wing surface and pontoons. Beautiful aircraft sometimes called "flying radiator." World War 2 Spitfire a descendant.



S/Sgt. John Stewart, USAF, with Denzin-designed (Germany) A-2. It does 2:45 calm air. Note AMA and German Aero Club numbers.

FAI REPORT

Werner Paschke, Berlin, flew stunt program, for fun, at RC Internats, that got talked about. Homemade four-channel outfit. Reliable.

A climb that makes you gasp is eyewitness description of model by Lothar Piesk, Power Finals. Auto-rubber kicks over, for transition.

by ED DOLBY and LEE RENAUD

Teams now three men • Power, Wakefield, Nordic, 1959 • RC, Team, Speed, Stunt, 1960 • American Eliminations • Rules for Stunt and Team Racing.

► *Dateline Belgium*—Starting with 1959 teams for International Competition will be three-man, one less than formerly. This was the most important decision of the annual International Model Commission meeting.

• • •

Changes in the rules for World Championship events often confuse the American modeler. There are now seven recognized classes of events for World Championship competition, split into two groups with the championships for each group held on alternate years. The 1959 championships will be for Power, Wakefield, and Nordic. In 1960 the contests will be for Radio Control, three Control-Line events, Team Racing, Speed, and Stunt.

At the 1958 Model Commission annual meeting in Belgium last November, the US was represented by AMA President, Dr. Walter Good, and Technical Director, Carl Wheeley. The commission announced the results of a mail vote to member countries regarding the number of team members. A large vote was cast in favor of reducing the number of team members to three for all events. AMA favored retaining the four-man teams. The decision to reduce team members resulted from the addition of more events in 1957. Some of the smaller countries cannot afford to send large teams to so many contests (who can?—Editor) so smaller teams were to be expected.

In 1959 the Radio Control event will be reduced to one class. This will be for power models with multi-channel control. Also the surface loading was increased from 50 grams per sq. dm. to 75 gr. per sq. dm. (from 16.25 oz., to 24.4 oz.). There are no changes in the free flight rules or specifications. (See pages 32-34 AMA Rule book for complete specs.) The annual meeting usually decides the dates and sites of the International contests for the coming season. The best dates proved to be "late August." This allows more time for team selections, important in the US where good weather is late in coming.

The meeting received no offers from countries to host the competitions. The smaller countries who campaigned for more events, now have trouble with time, money, and manpower to carry out such programs.

Should the responsibility fall on the larger countries all the time? Finally, Belgium agreed to be host to the 1959 Nordic contest. This, of course, presents the possibility of having three dates and sites for the Free Flight Championships scheduled for this year. Many delegates could not accept responsibility for a host country unless first checking back home. A mail appeal may bring the necessary invitations.

Performance of American teams during the past five years has been disappointing. Shipping models overseas in a box to be flown by a proxy explains much of this. However, even when our teams were able to compete personally, results were poor. This questions our methods of selecting team members.

Since 1951 we have selected teams on the basis of one elimination and one semi-final. The eliminations determine that all competitors who enter semi-finals are the best in their local areas. The top man in the semi-finals then becomes our team member. Only five flights have decided who will represent this country. This is not an adequate system. It would certainly be better if more flights were used to average out individual (*Continued on page* 56)

Solid Electra

by CEDRIC E. GALLOWAY

Plastics hounds with a yen to "make" something, find a unique carving, sanding, and painting festival in U. S.'s first turboprop transport.

Lockheed display model built by the writer, an old scale fan, solid and flying, from way back. In fact, even if you don't go for "whittlin' " there's tips aplenty in those directions below.

► The new Lockheed Electra is the first American-designed propjet transport to fly.

This fast four-engine airliner will carry 66 passengers at 30,000 feet in a new standard of luxury, or 91 passengers tourist, first class.

At least 161 Electras have been ordered by six leading airlines, at a cost of $356,000,000. Wing span 99 ft., fuselage length 104 ft. 2 inches, and height to tip of rudder 32 ft. 3 inches. Gross take-off weight is 113,000 lbs., range 2,800 miles, cruising speed 412 mph, and top speed 450 mph. Power is four 3,750 h.p. Allison 501 propjet engines.

To start the model, first choose your favorite materials. Hard balsa is the easiest wood to work with but I prefer yellow poplar. It lends itself to fine carving and super-finish.

Lay out the fuselage side template on block of wood. The top view of fuselage will give top fuselage template. Cut out the top first with suitable saw—such as band saw or coping saw. Replace the two pieces by pinning them to the center block. Now cut out the side.

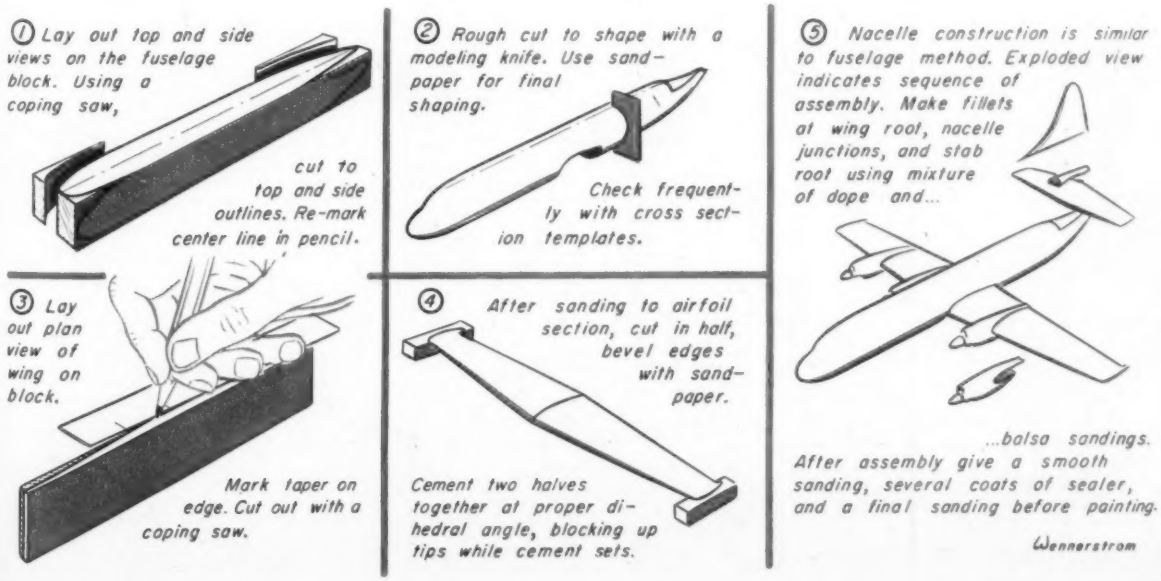
Next lay out the stations A, B, C, etc. from the side and top views. These are the locations for checking the correct section shapes by using the corresponding fuselage cross-section templates.

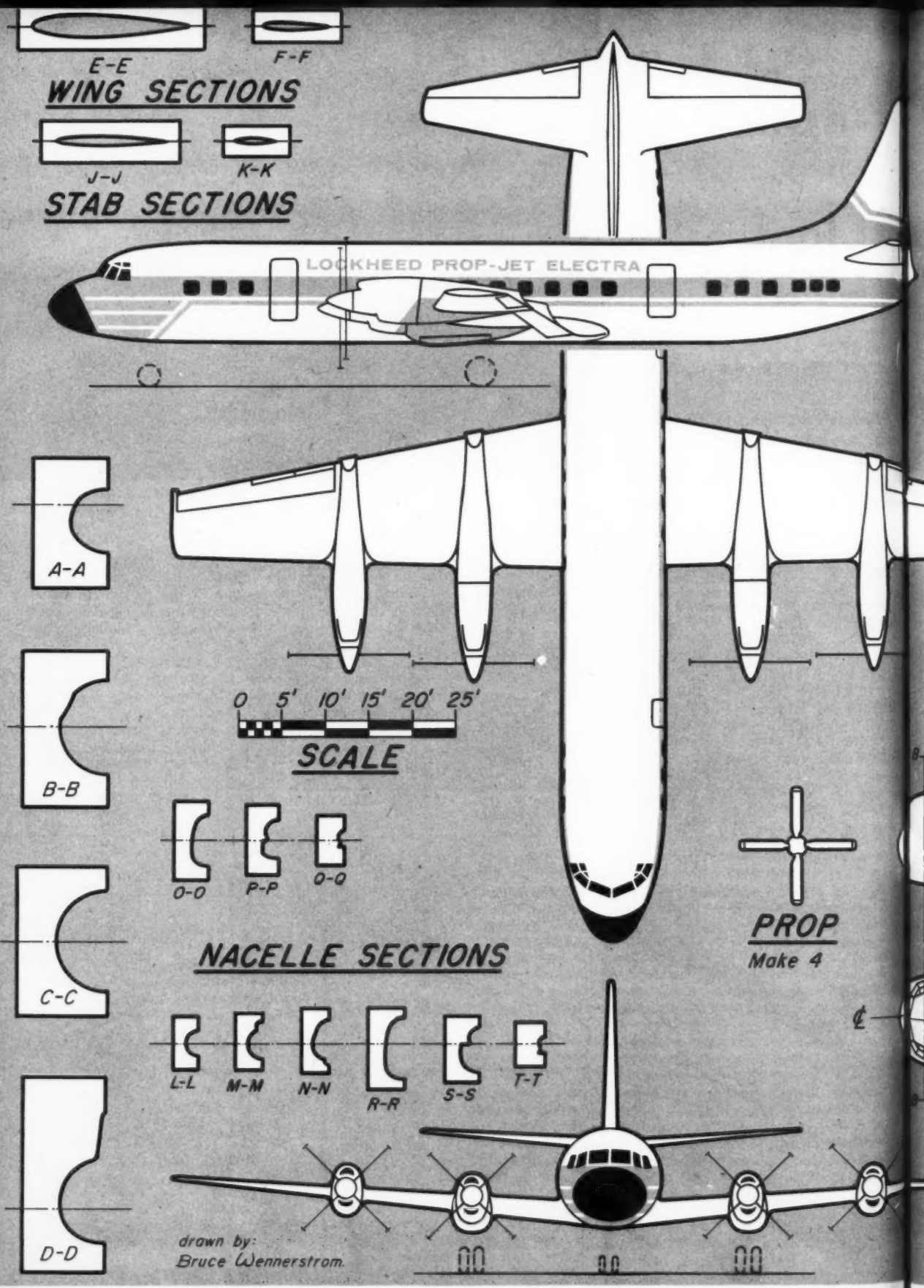
Lay out center line on side of fuselage block. Always line up center line of fuselage templates with this center line as you carve to shape. Windshield is cut in with flat file. Note the constant section C-C to C-C.

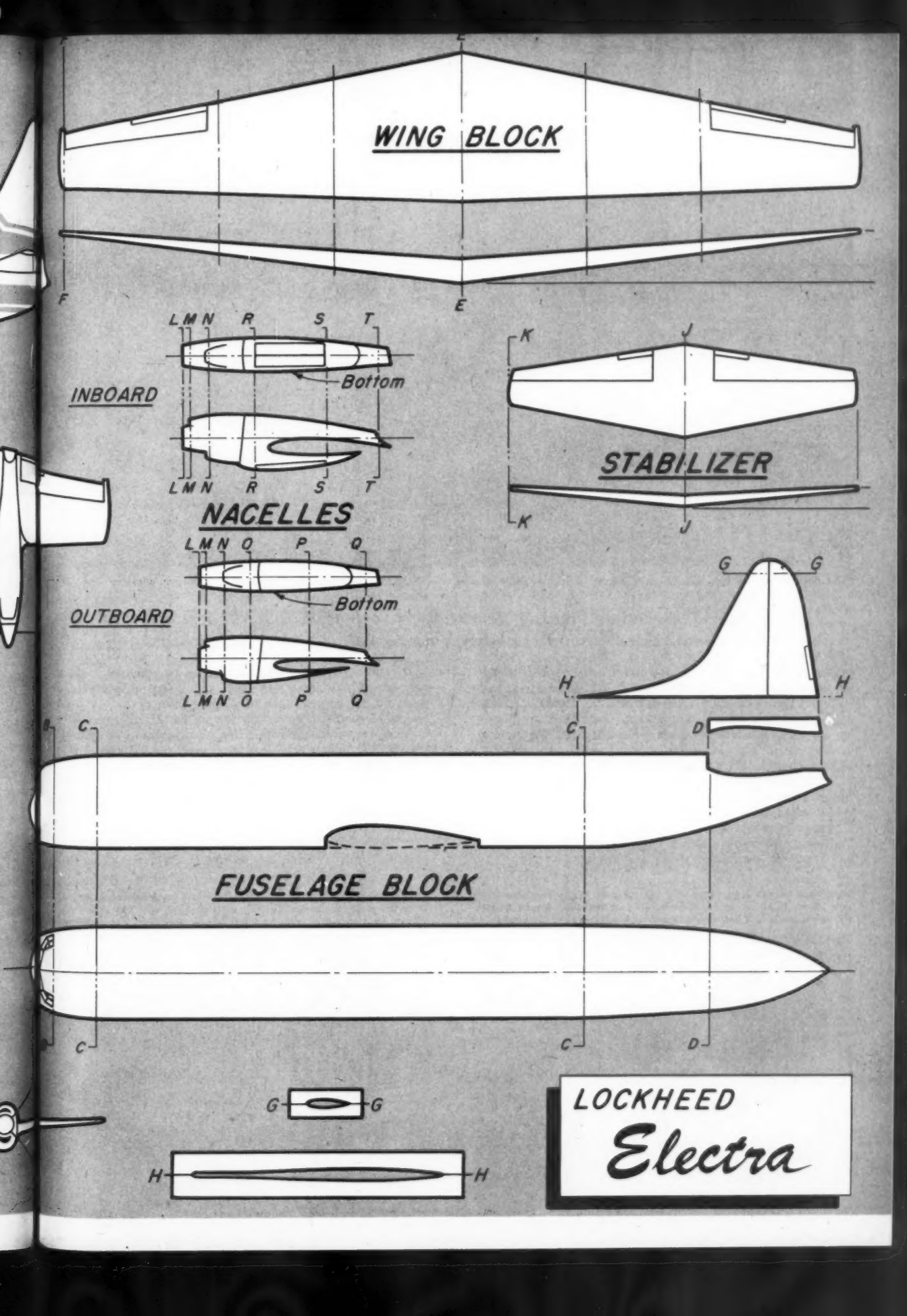
The horizontal stabilizer is built in two sections, left and right. Cement at center line J-J, giving the tail the correct dihedral by placing a 9/64" block under each tip, K-K. Carve to shape by using templates J-J and K-K.

Model cement is good for balsa (*Continued on page* 51)

PLANS ON NEXT TWO PAGES

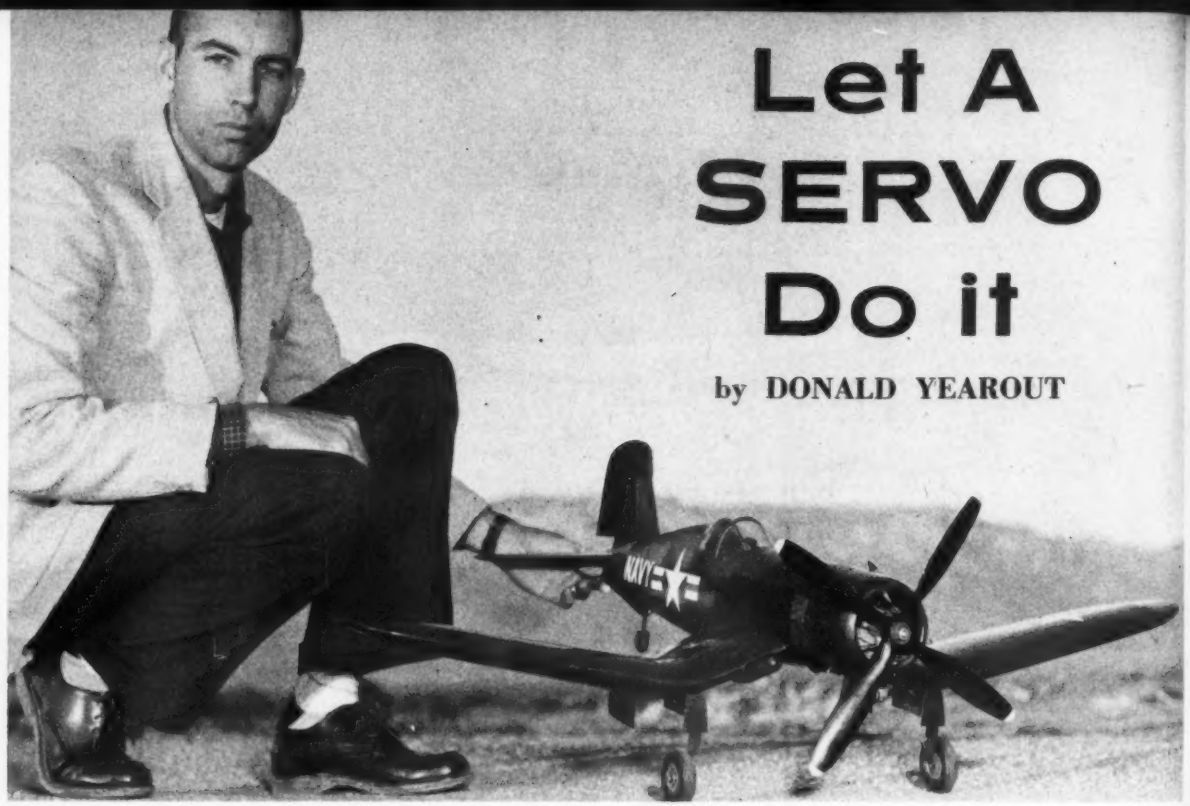

1 Lay out top and side views on the fuselage block. Using a coping saw, cut to top and side outlines. Re-mark center line in pencil.
2 Rough cut to shape with a modeling knife. Use sandpaper for final shaping. Check frequently with cross section templates.
3 Lay out plan view of wing on block. Mark taper on edge. Cut out with a coping saw.
4 After sanding to airfoil section, cut in half, bevel edges with sandpaper. Cement two halves together at proper dihedral angle, blocking up tips while cement sets.
5 Nacelle construction is similar to fuselage method. Exploded view indicates sequence of assembly. Make fillets at wing root, nacelle junctions, and stab root using mixture of dope and...
...balsa sandings. After assembly give a smooth sanding, several coats of sealer, and a final sanding before painting.
Wennerstrom


E-E
F-F
WING SECTIONS
J-J
K-K
STAB SECTIONS
LOCKHEED PROP-JET ELECTRA
A-A
B-B
C-C
D-D
0 5' 10' 15' 20' 25'
SCALE
O-O
P-P
Q-Q
NACELLE SECTIONS
L-L
M-M
N-N
R-R
S-S
T-T
PROP
Make 4
drawn by:
Bruce Wennerstrom.


WING BLOCK
F
E
INBOARD
L M N R S T
Bottom
NACELLES
OUTBOARD
L M N O P Q
Bottom
K
J
STABILIZER
G
H
B
C
D
FUSELAGE BLOCK
LOCKHEED
Electra

Let A SERVO Do it

by DONALD YEAROUT



Extremely reliable throttle control on author's Corsair enabled him to win 1952 Nationals' Carrier Event. Had Anderson .65, now Fox .59.

Throttles, retracting landing gears, flaps, are marginal at best with conventional third line. Reliability easy to get. So why fool around?

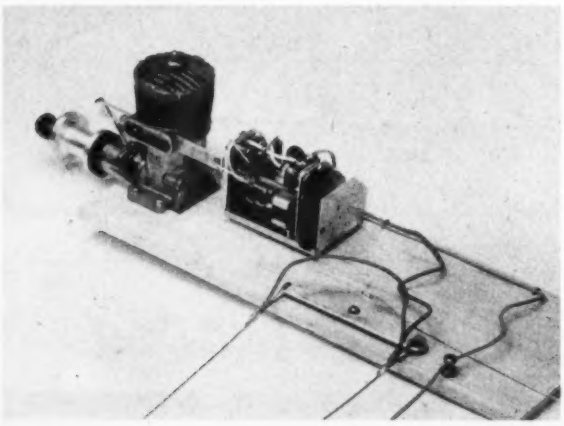
► No doubt many of you control-line fans, especially flying scale and Navy Carrier enthusiasts, have diligently searched for methods of actuating throttles, landing gears, flaps, and other point getting extras. Third lines are popular but leave much to be desired in most cases. Retracting landing gears and operating flaps becomes very difficult indeed when the third-line method is used.

Many other ingenious methods have been used through the years but all seem to have one fault in common. There is not enough available power to do the job properly. Direct-current servos are coming into their own as actuating devices for radio control. The new crop of servos have ample power, low battery drain, and are light weight.

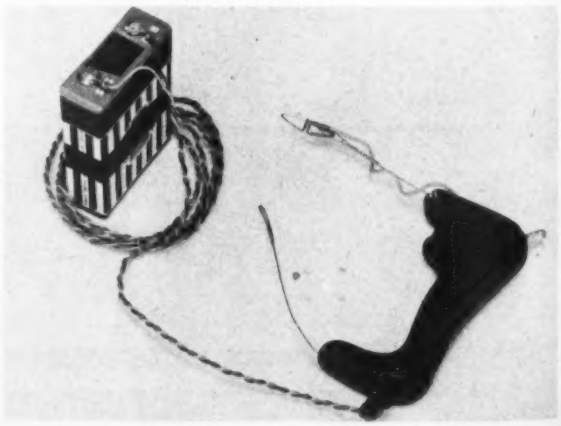
Of course, one is not restricted to commercially available servos. The great variety of small electric motors and gears on the market make it possible for a person to build his servo unit to better fit a specific installation. If a method were found for applying servo actuators to control-line models, many new and interesting possibilities would be presented. Here are two possible methods.

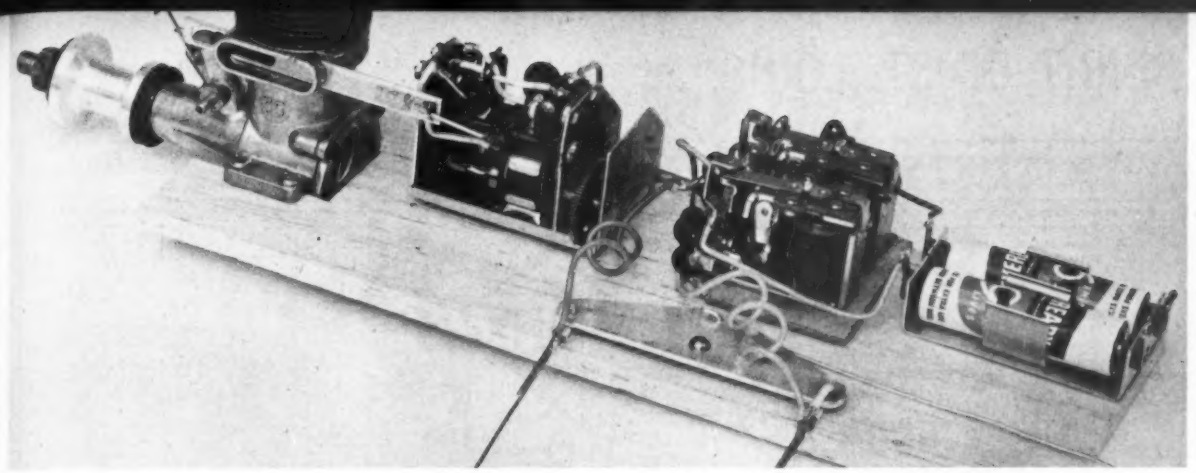
As many of you have surely discovered, steel control wires offer too much resistance to allow batteries at the central handle to operate directly a servo in the airplane. To overcome this, one method which the author has used is to place both servo and servo battery in the plane and operate them by use of low-voltage relays in the plane and

Both lines as one lead (note soldered jumper), while insulated lead goes direct to servo. Servo, throttle (exhaust restrictor, intake butterfly) home made, but commercially available. Several brands available.



Control handle with toggle switch built in and typical battery, voltage of which must be compatible with individual set-ups. The schematics, tables, opposite page, give essential information. Two basic systems.





Third line eliminated by putting servo batteries inside plane and using two low-voltage relays. Smaller, lighter relays can be used.

relay battery at the control handle. This method will work but has two disadvantages; excess weight and complexity. Figure one gives the circuit for this method.

A better method would be to eliminate the relays and relay battery and operate the servo directly from a battery at the handle. To accomplish this, the before mentioned high resistance of the control lines must be overcome. After many attempts at a solution, some of which worked but were marginal, the best answer was found to be the addition of a single low-resistance, insulated hookup wire to the control lines. By the addition of this wire and using the two control lines together as the other conductor, the total resistance may be lowered to a point where servos may be successfully operated. (See figure two).

Now let us look at a typical situation. If you have found a particular servo you would like to use, here is how to proceed. First, measure the current drawn by the servo motor when operating (starting will draw somewhat more). Simply hook an ammeter in series with servo and servo battery and read current in amps directly on meter.

Second, select control lines (length and diameter) you are going to use and figure resistance from accompanying table. (See figure three). Then find insulated hookup wire you can use and figure resistance from corresponding table. (Also figure three). Tensolite Insulated Wire Co., Tarrytown, N.Y., makes an excellent line of wire in this general size.

With this information you can now figure what battery you need at the control handle. If, for instance, your servo draws one-half amp current and you must use 60' lines .018 diameter, and want to use #26 insulated wire set up, the formula goes like this: .5 amp times (10.5 ohms total control line resistance, cuts the resistance in half, plus 2.4 ohms total insulated wire resistance) equals voltage drop at servo; .5 times 12.9 equals 6.45 volt drop. This means that in order to operate a three-volt servo you need a 9.45 battery at the handle. A nine- to 12-volt battery could be used, with the twelve-volt one preferred, to help overcome the somewhat greater starting current.

By juggling control wire (*Continued on page* 56)

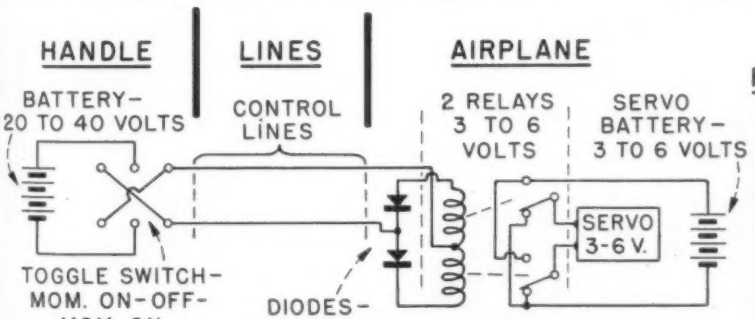


FIGURE 1

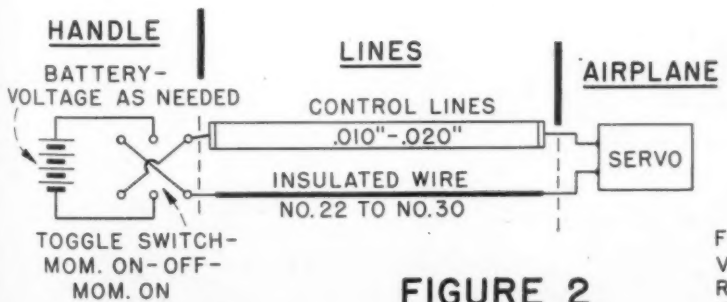


FIGURE 2

FIGURE 3

RESISTANCE OF CONTROL LINES

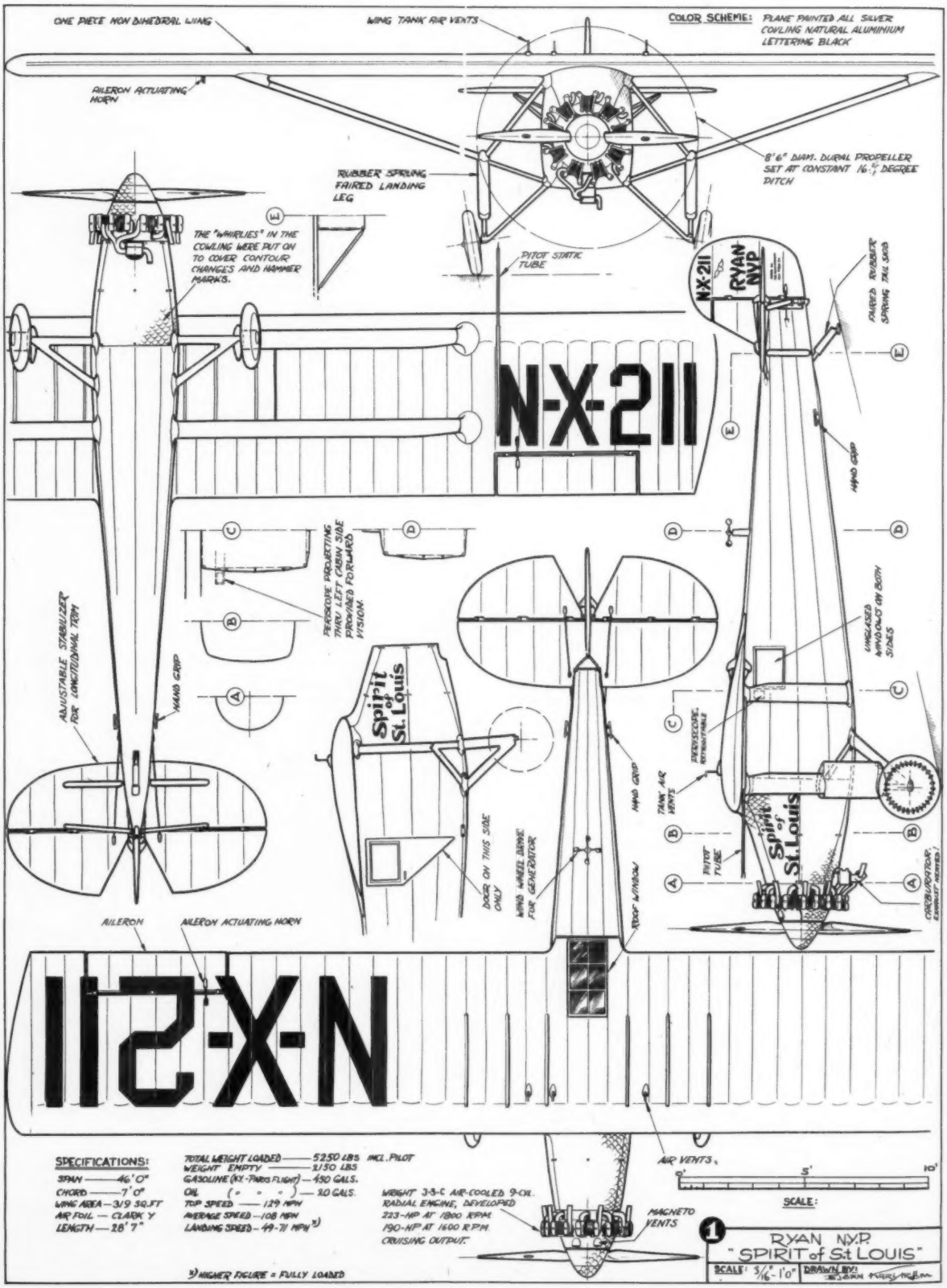
WIRE DIAMETER	RESISTANCE IN OHMS PER 10 FOOT LENGTH
.010	12.025
.012	7.125
.014	5.475
.016	5.125
.018	3.50
.020	3.00

RESISTANCE OF INSULATED HOOKUP WIRE

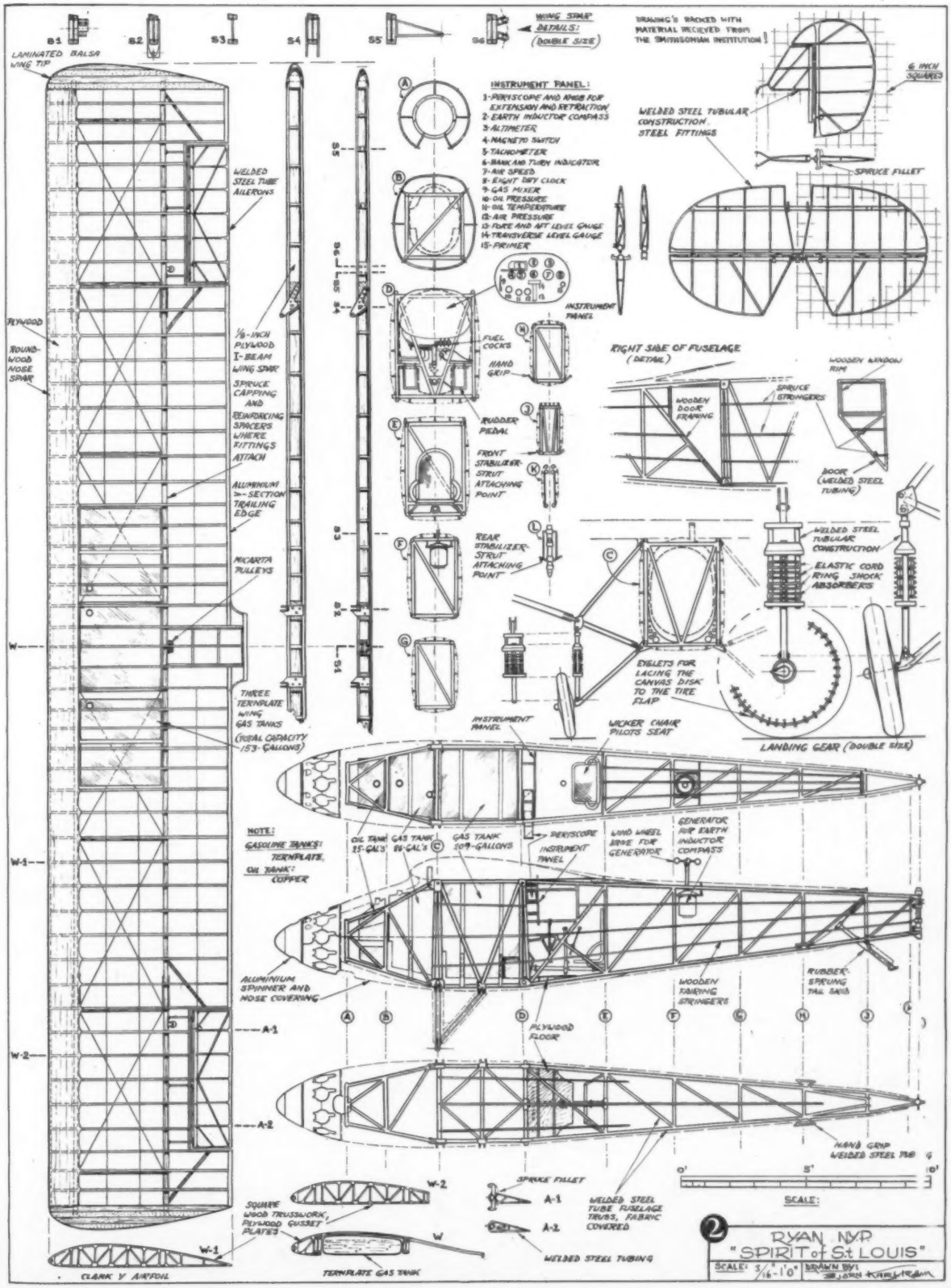
WIRE SIZE	RESISTANCE IN OHMS PER 10 FOOT LENGTH
NO. 22	.16
NO. 24	.26
NO. 26	.40
NO. 28	.57
NO. 30	1.16

FORMULA FOR FIGURING VOLTAGE DROP
VOLTAGE DROP EQUALS TOTAL LINE RESISTANCE IN OHMS TIMES CURRENT IN AMPS DRAWN BY SERVO MOTOR.

SPIRIT OF ST. LOUIS . . . *Plans by Bjorn Karlstrom*


ONE PIECE NON DIHEDRAL WING
WING TANK AIR VENTS
COLOR SCHEME: PLANE PAINTED ALL SILVER COWLING NATURAL ALUMINIUM LETTERING BLACK
AILERON ACTUATING HORN
8'6" DIAM. DURAL PROPELLER SET AT CONSTANT 16½° DEGREE PITCH
RUBBER SPRING FAIRED LANDING LEG
THE "WHIRLIES" IN THE COWLING WERE PUT ON TO COVER CONTOUR CHANGES AND HAMMER MARKS.
PITOT STATIC TUBE
RYAN NYP
NX-211
FAIRED RUBBER SPRING TAIL SKID
HAND GRIP
ADJUSTABLE STABILIZER FOR LONGITUDINAL TRIM
PERISCOPE PROJECTING THRU LEFT CABIN SIDE PROVIDED FORWARD VISION.
Spirit of St. Louis
UNSLASED WINDOWS ON BOTH SIDES
PERISCOPE EXTENDED
TANK AIR VENTS
PITOT TUBE
EXHAUST HEADER
DOOR ON THIS SIDE ONLY
WIND WHEEL DRIVE FOR GENERATOR
ROOF WINDOW
AILERON
AILERON ACTUATING HORN
AIR VENTS
MAGNETO VENTS
SCALE:
0' 5' 10'
SPECIFICATIONS:
SPAN — 46'0"
CHORD — 7'0"
WING AREA — 319 SQ.FT
AIR FOIL — CLARK Y
LENGTH — 28'7"
TOTAL WEIGHT LOADED — 5250 LBS INCL. PILOT
WEIGHT EMPTY — 2150 LBS
GASOLINE (XI-PARIS FLIGHT) — 450 GALS.
OIL (" ") — 30 GALS.
TOP SPEED — 129 MPH
AVERAGE SPEED — 108 MPH
LANDING SPEED — 49-71 MPH 3)
WRIGHT 3-3-C AIR-COOLED 9-CYL. RADIAL ENGINE, DEVELOPED 223-HP AT 1800 R.P.M. 190-HP AT 1600 R.P.M. CRUISING OUTPUT.
3) HIGHER FIGURE = FULLY LOADED
1
RYAN N.Y.P.
"SPIRIT of St. LOUIS"
SCALE: 3/16"-1'0"
DRAWN BY: BJORN & KURT KARLSTROM

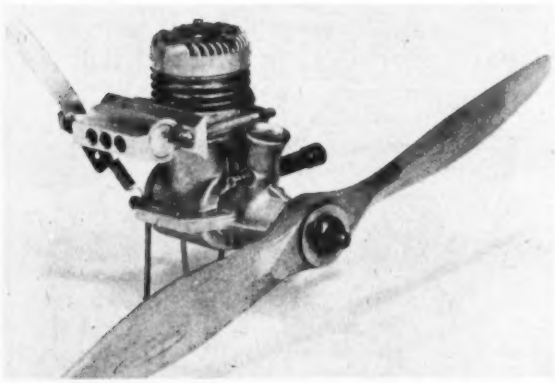
Collectors and model builders both will treasure this much sought-after plan of one of history's most famous aircraft. In 3/16 scale, drawings easy to enlarge.



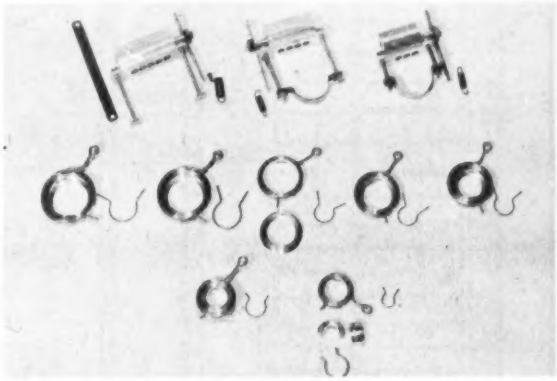
radio control news

by EDWARD J. LORENZ

Cranking sharp-looking crate, is Bill Williams, at a meet near San Diego. Ship had elevator, engine, rudder control. Vista in background only a "corner" of the area! Photo by Victor Silva.



Small Roto-Valve throttle ideal for Fox .15 etc. Firm has three exhaust restrictor throttles this type, many for 360-degree ports.



Roto-Valve exhaust throttles now cover just about every type and size of engine, such as Cox, Cub, and so on. Also good for U/C.

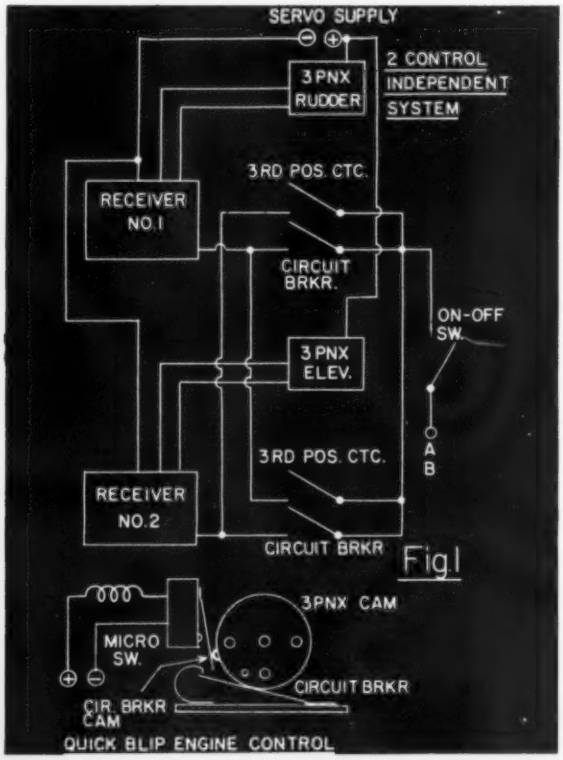


Fig.1

Gentlemen: If you don't agree this the tops in RC reports, you may claim free hand-launch from any MAN staff member.

TECHNICAL TOPICS

► With many "poor man" multi and Mickey Mouse systems making the rounds, Fig. 1 shows the system developed by Milton Schmidt, of Buffalo, N.Y. Most rudder-only fliers have the parts needed, which are: one regular transmitter, tone or carrier as the case may be, two receivers, tuned to the same transmitter, and two Model 3PNX Multi-Servos.

Each receiver and servo is wired to a common battery supply. Receiver #1 has its A and B battery wired through the 3rd contact of the servo operated by receiver #2. In turn, receiver #2 has its A and B battery wired through the 3rd contact of the servo operated by receiver #1. The 3PNX circuit breaker is normally closed except when the servo is in the 3rd position, where it opens. Each receiver is wired through this circuit breaker on its *own* servo; thus the receiver is always ready for use except when the servo has stopped in the 3rd position.

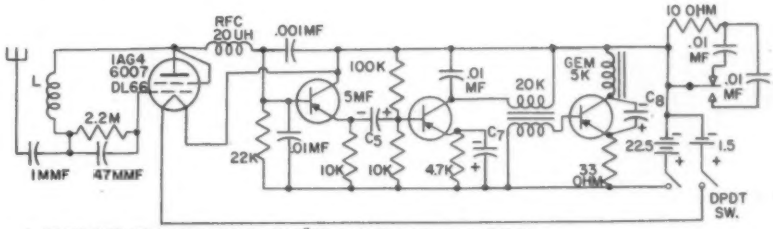
When either servo stops in the 3rd position it closes the 3rd contact which bypasses the circuit breaker on the *other* servo and puts that receiver in operation. The system allows the use of two controls with a normal pulsing sequence. It is not necessary to use compound pulsing to get left or right or up or down. What happens in operation?

If #1 receiver is the rud- (*Continued on page* 32)

Magnificent MAN Flamingo (plan #27) Peter Reed, Plainville, Conn. Arden .19, Bramco throttle, Gyro receiver, Babcock escapement.

Good flying characteristics and water-handling traits above average, reported by Reed. Watertight despite external adjustments.

the Kraft Receiver

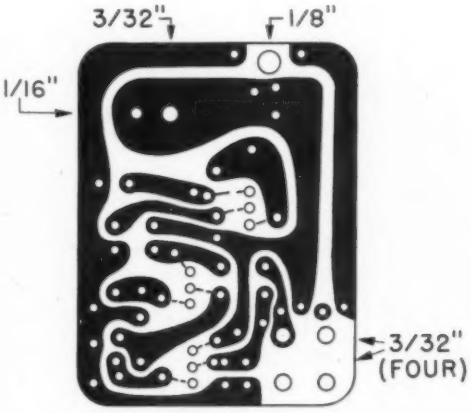


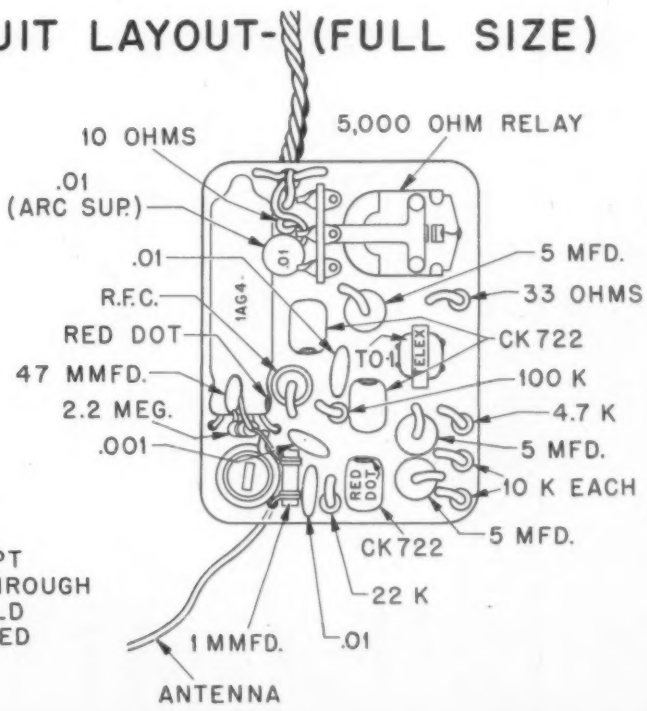
L-52 MC, 20T NO. 26 EN. WIRE ON 5/16" I.D. PRINTED CIR., SLUG TUNED.
27 MC, 35T NO. 30 " " " " " " " " " "
USE ONLY 1AG4 FOR 52MC.
ALL ELECTROLYTIC CAPS.-5MF/50V. (SPRAGUE TE-1303)
ALL TRANSISTORS-CK722 (BETA 20-30)
ANT-APROX 20" RELAY SETTING-PULL IN 2.2 MA, DROP OUT 1.8 MA
XFMR-TELEX TO-1, OR EQUIV. 20K-1K IMP.

Fig.2 KRAFT RECEIVER

Test receivers built from this reader schematic show brilliant results. Not construction feature, report will interest the experts.

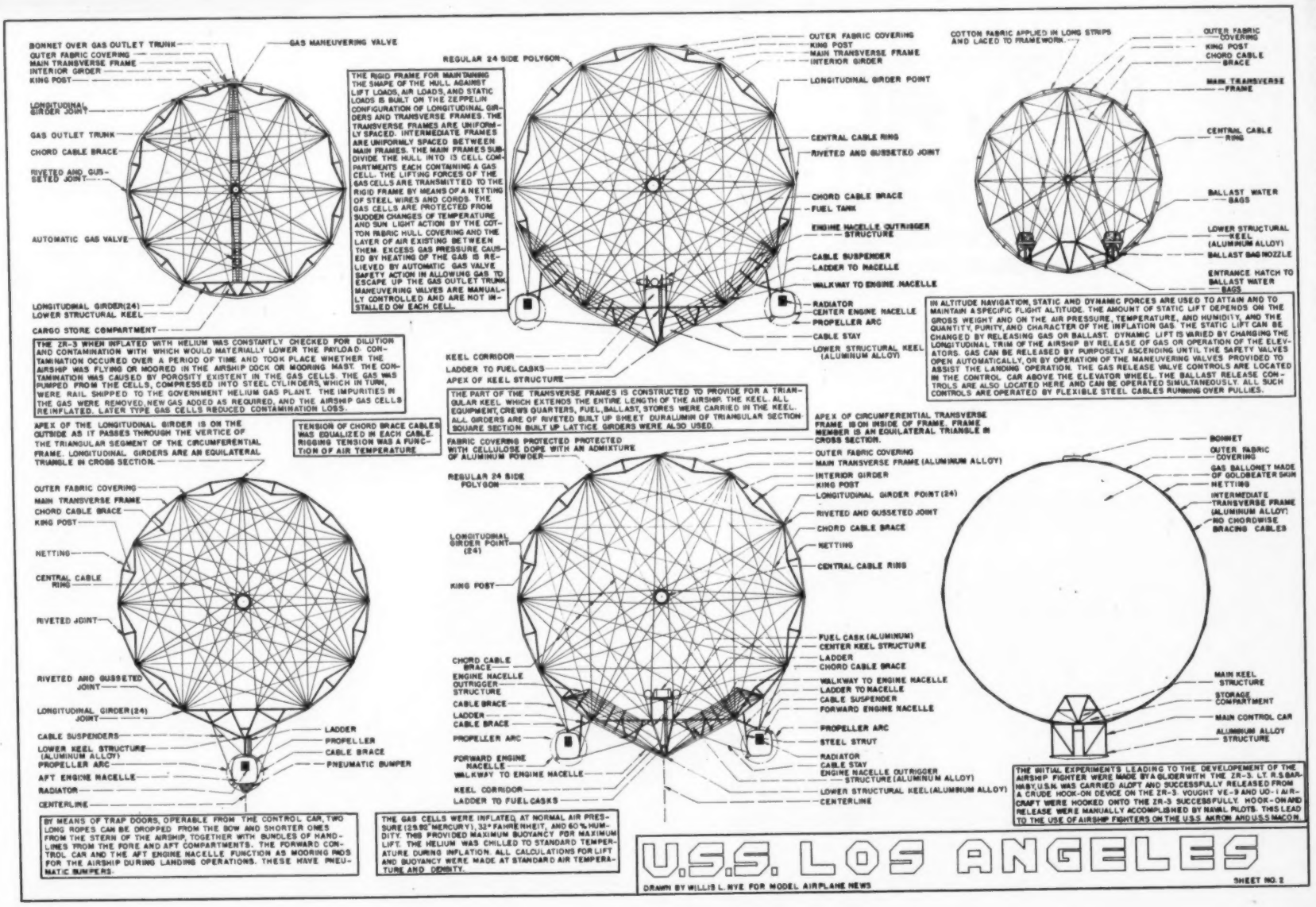
FIG. 3 - PRINTED CIRCUIT LAYOUT - (FULL SIZE)



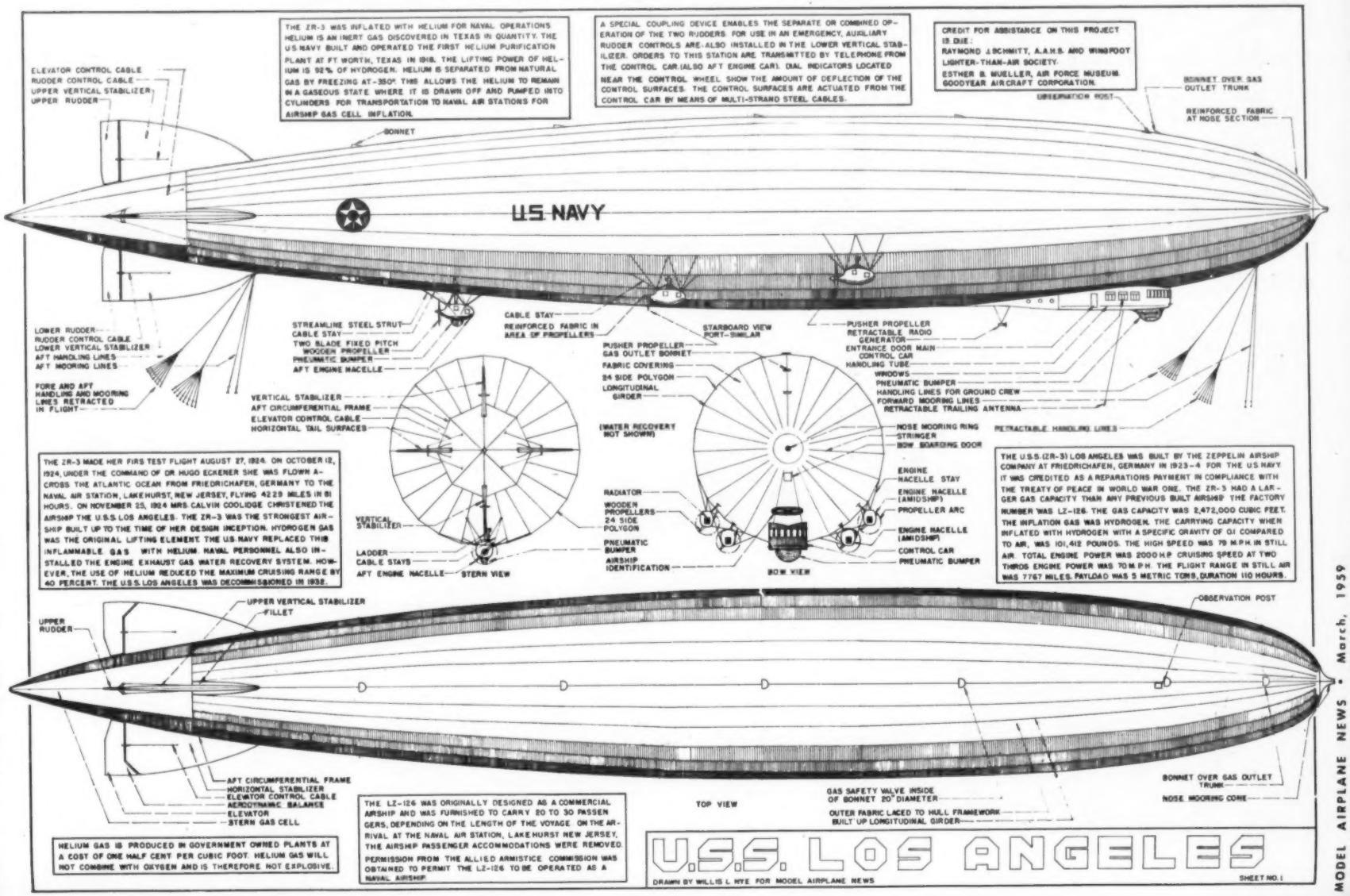


USE NO. 60 DRILL THROUGHOUT, EXCEPT AS NOTED. PUT TRANSISTOR LEADS THROUGH HOLES AND BEND ONTO PATTERN. HOLD LEADS WITH TWEEZERS OR LONG-NOSED PLIERS TO DISSIPATE HEAT WHILE SOLDERING.

The LOS ANGELES by Willis L. Nye. Built by the Germans as World War 1 reparations,


BONNET OVER GAS OUTLET TRUNK
OUTER FABRIC COVERING
MAIN TRANSVERSE FRAME
INTERIOR GIRDER
KING POST
LONGITUDINAL GIRDER JOINT
GAS OUTLET TRUNK
CHORD CABLE BRACE
RIVETED AND GUSSETED JOINT
AUTOMATIC GAS VALVE
LONGITUDINAL GIRDER(24)
LOWER STRUCTURAL KEEL
CARGO STORE COMPARTMENT
GAS MANEUVERING VALVE
THE ZR-3 WHEN INFLATED WITH HELIUM WAS CONSTANTLY CHECKED FOR DILUTION AND CONTAMINATION WITH WHICH WOULD MATERIALLY LOWER THE PAYLOAD. CONTAMINATION OCCURED OVER A PERIOD OF TIME AND TOOK PLACE WHETHER THE AIRSHIP WAS FLYING OR MOORED IN THE AIRSHIP DOCK OR MOORING MAST. THE CONTAMINATION WAS CAUSED BY POROSITY EXISTENT IN THE GAS CELLS. THE GAS WAS PUMPED FROM THE CELLS, COMPRESSED INTO STEEL CYLINDERS, WHICH IN TURN, WERE RAIL SHIPPED TO THE GOVERNMENT HELIUM GAS PLANT. THE IMPURITIES IN THE GAS WERE REMOVED, NEW GAS ADDED AS REQUIRED, AND THE AIRSHIP GAS CELLS REINFLATED. LATER TYPE GAS CELLS REDUCED CONTAMINATION LOSS.
APEX OF THE LONGITUDINAL GIRDER IS ON THE OUTSIDE AS IT PASSES THROUGH THE VERTICE OF THE TRIANGULAR SEGMENT OF THE CIRCUMFERENTIAL FRAME. LONGITUDINAL GIRDERS ARE AN EQUILATERAL TRIANGLE IN CROSS SECTION.
OUTER FABRIC COVERING
MAIN TRANSVERSE FRAME
CHORD CABLE BRACE
KING POST
NETTING
CENTRAL CABLE RING
RIVETED JOINT
RIVETED AND GUSSETED JOINT
LONGITUDINAL GIRDER(24) JOINT
CABLE SUSPENDERS
LOWER KEEL STRUCTURE (ALUMINUM ALLOY)
PROPELLER ARC
AFT ENGINE NACELLE
RADIATOR
CENTERLINE
LADDER
PROPELLER
CABLE BRACE
PNEUMATIC BUMPER
BY MEANS OF TRAP DOORS, OPERABLE FROM THE CONTROL CAR, TWO LONG ROPES CAN BE DROPPED FROM THE BOW AND SHORTER ONES FROM THE STERN OF THE AIRSHIP, TOGETHER WITH BUNDLES OF HANDLINES FROM THE FORE AND AFT COMPARTMENTS. THE FORWARD CONTROL CAR AND THE AFT ENGINE NACELLE FUNCTION AS MOORING PODS FOR THE AIRSHIP DURING LANDING OPERATIONS. THESE HAVE PNEUMATIC BUMPERS.
THE RIGID FRAME FOR MAINTAINING THE SHAPE OF THE HULL AGAINST LIFT LOADS, AIR LOADS, AND STATIC LOADS IS BUILT ON THE ZEPPELIN CONFIGURATION OF LONGITUDINAL GIRDERS AND TRANSVERSE FRAMES. THE TRANSVERSE FRAMES ARE UNIFORMLY SPACED. INTERMEDIATE FRAMES ARE UNIFORMLY SPACED BETWEEN MAIN FRAMES. THE MAIN FRAMES SUBDIVIDE THE HULL INTO 13 CELL COMPARTMENTS EACH CONTAINING A GAS CELL. THE LIFTING FORCES OF THE GAS CELLS ARE TRANSMITTED TO THE RIGID FRAME BY MEANS OF A NETTING OF STEEL WIRES AND CORDS. THE GAS CELLS ARE PROTECTED FROM SUDDEN CHANGES OF TEMPERATURE AND SUN LIGHT ACTION BY THE COTTON FABRIC HULL COVERING AND THE LAYER OF AIR EXISTING BETWEEN THEM. EXCESS GAS PRESSURE CAUSED BY HEATING OF THE GAS IS RELIEVED BY AUTOMATIC GAS VALVE SAFETY ACTION IN ALLOWING GAS TO ESCAPE UP THE GAS OUTLET TRUNK. MANEUVERING VALVES ARE MANUALLY CONTROLLED AND ARE NOT INSTALLED ON EACH CELL.
TENSION OF CHORD BRACE CABLES WAS EQUALIZED IN EACH CABLE. RIGGING TENSION WAS A FUNCTION OF AIR TEMPERATURE.
REGULAR 24 SIDE POLYGON
KEEL CORRIDOR
LADDER TO FUEL CASKS
APEX OF KEEL STRUCTURE
OUTER FABRIC COVERING
KING POST
MAIN TRANSVERSE FRAME
INTERIOR GIRDER
LONGITUDINAL GIRDER POINT
CENTRAL CABLE RING
RIVETED AND GUSSETED JOINT
CHORD CABLE BRACE
FUEL TANK
ENGINE NACELLE OUTRIGGER STRUCTURE
CABLE SUSPENDER
LADDER TO NACELLE
WALKWAY TO ENGINE NACELLE
RADIATOR
CENTER ENGINE NACELLE
PROPELLER ARC
CABLE STAY
LOWER STRUCTURAL KEEL (ALUMINUM ALLOY)
THE PART OF THE TRANSVERSE FRAMES IS CONSTRUCTED TO PROVIDE FOR A TRIANGULAR KEEL WHICH EXTENDS THE ENTIRE LENGTH OF THE AIRSHIP. THE KEEL ALL EQUIPMENT, CREWS QUARTERS, FUEL, BALLAST, STORES WERE CARRIED IN THE KEEL. ALL GIRDERS ARE OF RIVETED BUILT UP SHEET DURALUMIN OF TRIANGULAR SECTION SQUARE SECTION BUILT UP LATTICE. GIRDERS WERE ALSO USED.
FABRIC COVERING PROTECTED PROTECTED WITH CELLULOSE DOPE WITH AN ADMIXTURE OF ALUMINUM POWDER
REGULAR 24 SIDE POLYGON
LONGITUDINAL GIRDER POINT (24)
KING POST
CHORD CABLE BRACE
ENGINE NACELLE OUTRIGGER STRUCTURE
CABLE BRACE
LADDER
CABLE BRACE
PROPELLER ARC
FORWARD ENGINE NACELLE
WALKWAY TO ENGINE NACELLE
KEEL CORRIDOR
LADDER TO FUEL CASKS
OUTER FABRIC COVERING
MAIN TRANSVERSE FRAME (ALUMINUM ALLOY)
INTERIOR GIRDER
KING POST
LONGITUDINAL GIRDER POINT (24)
RIVETED AND GUSSETED JOINT
CHORD CABLE BRACE
NETTING
CENTRAL CABLE RING
FUEL CASK (ALUMINUM)
CENTER KEEL STRUCTURE
LADDER
CHORD CABLE BRACE
WALKWAY TO ENGINE NACELLE
LADDER TO NACELLE
CABLE SUSPENDER
FORWARD ENGINE NACELLE
PROPELLER ARC
STEEL STRUT
RADIATOR
CABLE STAY
ENGINE NACELLE OUTRIGGER STRUCTURE (ALUMINUM ALLOY)
LOWER STRUCTURAL KEEL (ALUMINUM ALLOY)
CENTERLINE
THE GAS CELLS WERE INFLATED AT NORMAL AIR PRESSURE (29.92" MERCURY), 32° FAHRENHEIT, AND 60% HUMIDITY. THIS PROVIDED MAXIMUM BUOYANCY FOR MAXIMUM LIFT. THE HELIUM WAS CHILLED TO STANDARD TEMPERATURE DURING INFLATION. ALL CALCULATIONS FOR LIFT AND BUOYANCY WERE MADE AT STANDARD AIR TEMPERATURE AND DENSITY.
COTTON FABRIC APPLIED IN LONG STRIPS AND LACED TO FRAMEWORK.
OUTER FABRIC COVERING
KING POST
CHORD CABLE BRACE
MAIN TRANSVERSE FRAME
CENTRAL CABLE RING
BALLAST WATER BAGS
LOWER STRUCTURAL KEEL (ALUMINUM ALLOY)
BALLAST BAG NOZZLE
ENTRANCE HATCH TO BALLAST WATER BAGS
IN ALTITUDE NAVIGATION, STATIC AND DYNAMIC FORCES ARE USED TO ATTAIN AND TO MAINTAIN A SPECIFIC FLIGHT ALTITUDE. THE AMOUNT OF STATIC LIFT DEPENDS ON THE GROSS WEIGHT AND ON THE AIR PRESSURE, TEMPERATURE, AND HUMIDITY, AND THE QUANTITY, PURITY, AND CHARACTER OF THE INFLATION GAS. THE STATIC LIFT CAN BE CHANGED BY RELEASING GAS OR BALLAST. DYNAMIC LIFT IS VARIED BY CHANGING THE LONGITUDINAL TRIM OF THE AIRSHIP BY RELEASE OF GAS OR OPERATION OF THE ELEVATORS. GAS CAN BE RELEASED BY PURPOSELY ASCENDING UNTIL THE SAFETY VALVES OPEN AUTOMATICALLY, OR BY OPERATION OF THE MANEUVERING VALVES PROVIDED TO ASSIST THE LANDING OPERATION. THE GAS RELEASE VALVE CONTROLS ARE LOCATED IN THE CONTROL CAR ABOVE THE ELEVATOR WHEEL. THE BALLAST RELEASE CONTROLS ARE ALSO LOCATED HERE AND CAN BE OPERATED SIMULTANEOUSLY. ALL SUCH CONTROLS ARE OPERATED BY FLEXIBLE STEEL CABLES RUNNING OVER PULLIES.
APEX OF CIRCUMFERENTIAL TRANSVERSE FRAME IS ON INSIDE OF FRAME. FRAME MEMBER IS AN EQUILATERAL TRIANGLE IN CROSS SECTION.
BONNET
OUTER FABRIC COVERING
GAS BALLONET MADE OF GOLDBEATER SKIN
NETTING
INTERMEDIATE TRANSVERSE FRAME (ALUMINUM ALLOY)
NO CHORDWISE BRACING CABLES
MAIN KEEL STRUCTURE
STORAGE COMPARTMENT
MAIN CONTROL CAR
ALUMINUM ALLOY STRUCTURE
THE INITIAL EXPERIMENTS LEADING TO THE DEVELOPEMENT OF THE AIRSHIP FIGHTER WERE MADE BY A GLIDER WITH THE ZR-3. LT. R.S. BARNEY, U.S.N. WAS CARRIED ALOFT AND SUCCESSFULLY RELEASED FROM A CRUDE HOOK-ON DEVICE ON THE ZR-3. VOUGHT VE-9 AND VO-1 AIRCRAFT WERE HOOKED ONTO THE ZR-3 SUCCESSFULLY. HOOK-ON AND RELEASE WERE MANUALLY ACCOMPLISHED BY NAVAL PILOTS. THIS LEAD TO THE USE OF AIRSHIP FIGHTERS ON THE U.S.S. AKRON AND U.S.S. MACON.
U.S.S. LOS ANGELES
DRAWN BY WILLIS L. NYE FOR MODEL AIRPLANE NEWS
SHEET NO. 2

famous U.S. Navy dirigible operated for years, finally scrapped. Two installments.


THE ZR-3 WAS INFLATED WITH HELIUM FOR NAVAL OPERATIONS. HELIUM IS AN INERT GAS DISCOVERED IN TEXAS IN QUANTITY. THE U.S. NAVY BUILT AND OPERATED THE FIRST HELIUM PURIFICATION PLANT AT FT. WORTH, TEXAS IN 1918. THE LIFTING POWER OF HELIUM IS 92% OF HYDROGEN. HELIUM IS SEPARATED FROM NATURAL GAS BY FREEZING AT -350°. THIS ALLOWS THE HELIUM TO REMAIN IN A GASEOUS STATE WHERE IT IS DRAWN OFF AND PUMPED INTO CYLINDERS FOR TRANSPORTATION TO NAVAL AIR STATIONS FOR AIRSHIP GAS CELL INFLATION.
A SPECIAL COUPLING DEVICE ENABLES THE SEPARATE OR COMBINED OPERATION OF THE TWO RUDDERS. FOR USE IN AN EMERGENCY, AUXILIARY RUDDER CONTROLS ARE ALSO INSTALLED IN THE LOWER VERTICAL STABILIZER. ORDERS TO THIS STATION ARE TRANSMITTED BY TELEPHONE FROM THE CONTROL CAR (ALSO AFT ENGINE CAR). DIAL INDICATORS LOCATED NEAR THE CONTROL WHEEL SHOW THE AMOUNT OF DEFLECTION OF THE CONTROL SURFACES. THE CONTROL SURFACES ARE ACTUATED FROM THE CONTROL CAR BY MEANS OF MULTI-STRAND STEEL CABLES.
CREDIT FOR ASSISTANCE ON THIS PROJECT IS DUE: RAYMOND J. SCHMITT, A.A.H.S. AND WINGFOOT LIGHTER-THAN-AIR SOCIETY. ESTHER B. MUELLER, AIR FORCE MUSEUM. GOODYEAR AIRCRAFT CORPORATION.
ELEVATOR CONTROL CABLE
RUDDER CONTROL CABLE
UPPER VERTICAL STABILIZER
UPPER RUDDER
BONNET
U.S. NAVY
OBSERVATION POST
BONNET OVER GAS OUTLET TRUNK
REINFORCED FABRIC AT NOSE SECTION
LOWER RUDDER
RUDDER CONTROL CABLE
LOWER VERTICAL STABILIZER
AFT HANDLING LINES
AFT MOORING LINES
FORE AND AFT HANDLING AND MOORING LINES RETRACTED IN FLIGHT
STREAMLINE STEEL STRUT
CABLE STAY
TWO BLADE FIXED PITCH WOODEN PROPELLER
PNEUMATIC BUMPER
AFT ENGINE NACELLE
CABLE STAY
REINFORCED FABRIC IN AREA OF PROPELLERS
STARBOARD VIEW PORT-SIMILAR
PUSHER PROPELLER
GAS OUTLET BONNET
FABRIC COVERING
24 SIDE POLYGON
LONGITUDINAL GIRDER
PUSHER PROPELLER RETRACTABLE RADIO GENERATOR
ENTRANCE DOOR MAIN
CONTROL CAR
HANDLING TUBE
WINDOWS
PNEUMATIC BUMPER
HANDLING LINES FOR GROUND CREW
FORWARD MOORING LINES
RETRACTABLE TRAILING ANTENNA
RETRACTABLE HANDLING LINES
VERTICAL STABILIZER
AFT CIRCUMFERENTIAL FRAME
ELEVATOR CONTROL CABLE
HORIZONTAL TAIL SURFACES
(WATER RECOVERY NOT SHOWN)
NOSE MOORING RING
STRINGER
BOW BOARDING DOOR
ENGINE NACELLE STAY
ENGINE NACELLE (AMIDSHIP)
PROPELLER ARC
ENGINE NACELLE (AMIDSHIP)
CONTROL CAR
PNEUMATIC BUMPER
RADIATOR
WOODEN PROPELLERS
24 SIDE POLYGON
PNEUMATIC BUMPER
AIRSHIP IDENTIFICATION
VERTICAL STABILIZER
LADDER
CABLE STAYS
AFT ENGINE NACELLE
STERN VIEW
BOW VIEW
THE ZR-3 MADE HER FIRS TEST FLIGHT AUGUST 27, 1924. ON OCTOBER 12, 1924, UNDER THE COMMAND OF DR. HUGO ECKENER SHE WAS FLOWN ACROSS THE ATLANTIC OCEAN FROM FRIEDRICHAFEN, GERMANY TO THE NAVAL AIR STATION, LAKEHURST, NEW JERSEY, FLYING 4229 MILES IN 81 HOURS. ON NOVEMBER 25, 1924 MRS. CALVIN COOLIDGE CHRISTENED THE AIRSHIP THE U.S.S. LOS ANGELES. THE ZR-3 WAS THE STRONGEST AIRSHIP BUILT UP TO THE TIME OF HER DESIGN INCEPTION. HYDROGEN GAS WAS THE ORIGINAL LIFTING ELEMENT. THE U.S. NAVY REPLACED THIS INFLAMMABLE GAS WITH HELIUM. NAVAL PERSONNEL ALSO INSTALLED THE ENGINE EXHAUST GAS WATER RECOVERY SYSTEM. HOWEVER, THE USE OF HELIUM REDUCED THE MAXIMUM CRUISING RANGE BY 40 PERCENT. THE U.S.S. LOS ANGELES WAS DECOMMISSIONED IN 1932.
THE U.S.S. (ZR-3) LOS ANGELES WAS BUILT BY THE ZEPPELIN AIRSHIP COMPANY AT FRIEDRICHAFEN, GERMANY IN 1923-4 FOR THE U.S. NAVY. IT WAS CREDITED AS A REPARATIONS PAYMENT IN COMPLIANCE WITH THE TREATY OF PEACE IN WORLD WAR ONE. THE ZR-3 HAD A LARGER GAS CAPACITY THAN ANY PREVIOUS BUILT AIRSHIP. THE FACTORY NUMBER WAS LZ-126. THE GAS CAPACITY WAS 2,472,000 CUBIC FEET. THE INFLATION GAS WAS HYDROGEN. THE CARRYING CAPACITY WHEN INFLATED WITH HYDROGEN WITH A SPECIFIC GRAVITY OF .01 COMPARED TO AIR, WAS 101,412 POUNDS. THE HIGH SPEED WAS 79 M.P.H. IN STILL AIR. TOTAL ENGINE POWER WAS 2000 H.P. CRUISING SPEED AT TWO THIRDS ENGINE POWER WAS 70 M.P.H. THE FLIGHT RANGE IN STILL AIR WAS 7767 MILES. PAYLOAD WAS 5 METRIC TONS, DURATION 110 HOURS.
UPPER RUDDER
UPPER VERTICAL STABILIZER FILLET
OBSERVATION POST
AFT CIRCUMFERENTIAL FRAME
HORIZONTAL STABILIZER
ELEVATOR CONTROL CABLE
AERODYNAMIC BALANCE
ELEVATOR
STERN GAS CELL
TOP VIEW
GAS SAFETY VALVE INSIDE OF BONNET 20' DIAMETER
OUTER FABRIC LACED TO HULL FRAMEWORK
BUILT UP LONGITUDINAL GIRDER
BONNET OVER GAS OUTLET TRUNK
NOSE MOORING CONE
HELIUM GAS IS PRODUCED IN GOVERNMENT OWNED PLANTS AT A COST OF ONE HALF CENT PER CUBIC FOOT. HELIUM GAS WILL NOT COMBINE WITH OXYGEN AND IS THEREFORE NOT EXPLOSIVE.
THE LZ-126 WAS ORIGINALLY DESIGNED AS A COMMERCIAL AIRSHIP AND WAS FURNISHED TO CARRY 20 TO 30 PASSENGERS, DEPENDING ON THE LENGTH OF THE VOYAGE. ON THE ARRIVAL AT THE NAVAL AIR STATION, LAKEHURST NEW JERSEY, THE AIRSHIP PASSENGER ACCOMMODATIONS WERE REMOVED.
PERMISSION FROM THE ALLIED ARMISTICE COMMISSION WAS OBTAINED TO PERMIT THE LZ-126 TO BE OPERATED AS A NAVAL AIRSHIP.
U.S.S. LOS ANGELES
DRAWN BY WILLIS L. NYE FOR MODEL AIRPLANE NEWS
SHEET NO. 1

Citizen-Ship

SELECTIVE EQUIPMENT ON FIVE NEW FCC FREQUENCY ASSIGNMENTS

27.195 mc 27.145 mc 27.095 mc
27.045 mc 26.995 mc.

NEW! MODEL CTX

Custom Deluxe Tone or CW Single Channel Transmitter

$39.95

For the Discriminating Modeler. Can be used with on-off carrier or on-off tone on all new frequencies as well as 27.255 mc by simply changing crystal.

NEW! MODEL SSTR

Superheterodyne Selective Transistorized Receiver

$69.95

Features: Crystal Controlled Superheterodyne selective tone receiver. For use on any of 5 new FCC frequency assignments. No tuning required. May be changed from one channel to another by simply changing crystals. 8 Transistors—Uses single miniature 9 Volt transistor battery.

NEW! MODEL SS-MSR-8

Superheterodyne Selective Multi-Simultaneous 8-Channel Receiver

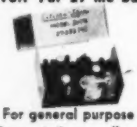
$149.95

Crystal Controlled. Completely Transistorized. Retains all the features of our proven 8-channel receiver with addition of selective Superheterodyne. Front end to permit interference free operation on the 5 new FCC frequency assignments. No Tuning Required. Simply Change Crystals to Operate On Different Frequency.

NEW! MODEL 3VTR

Tone Receiver 3 Volt For 27 mc Band

Companion Piece to CTX Tone Transmitter



$34.95

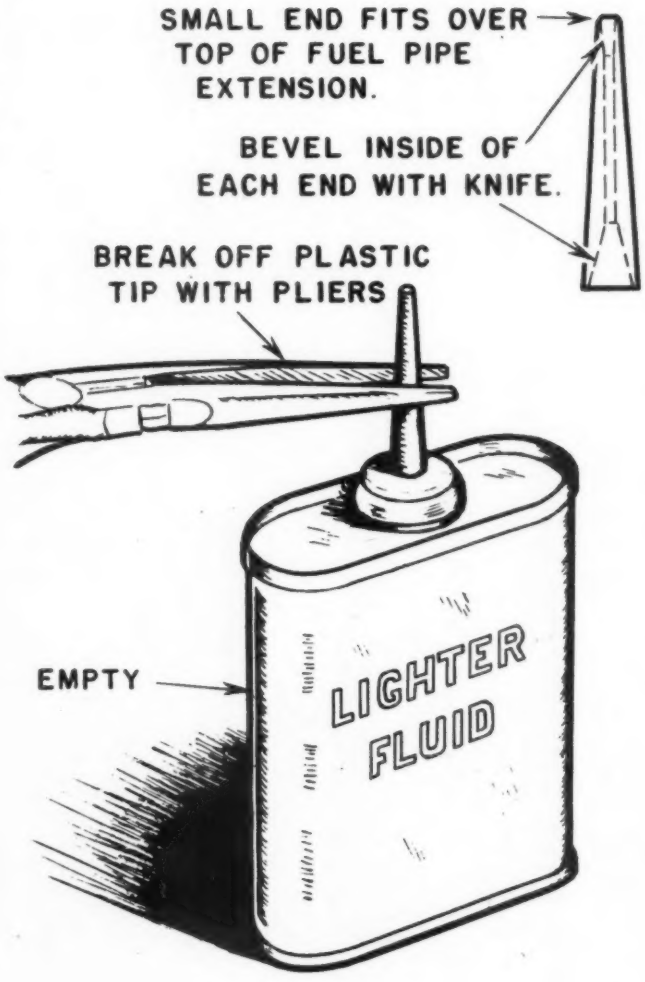
Completely transistorized. For general purpose flying. Total Battery requirement 2 pencells. Lowest battery complement and consumption of any set made. Idle current so low that battery life will equal shelf life. So small and light that it is especially suited to .022 planes. May also be used with Citizen-Ship REX or MST-8 Transmitter

Free Catalog Sheets on Request

Citizen-Ship

RADIO CORPORATION

820 East 64th Street Indianapolis, Ind.


SMALL END FITS OVER TOP OF FUEL PIPE EXTENSION.
BEVEL INSIDE OF EACH END WITH KNIFE.
BREAK OFF PLASTIC TIP WITH PLIERS
EMPTY
LIGHTER FLUID

Handy Funnel and Fuel Filler

by JOSEPH L. FERGUSON

► A handy funnel and filler for use with model airplane motors is easy to make. It's a good emergency outfit to have in the airplane kit in case the usual bulb and tubing gets lost or misplaced. The cost of making is negligible.

Obtain a lighter fluid can of the type with a tapered plastic tip. Break off the tip with a pair of pliers. Ream out the ends of the plastic with a small pen knife, taper fashion. One end fits the fuel pipe extension, as shown. The other end likewise is enlarged to fit the tip of a medicine dropper. If carefully fitted, the funnel will not leak fluid.

Radio Control News

(*Continued from page 28*)

der, one or two pulses will give right or left. When three pulses are received, #1 receiver (and rudder control) will cut out and #2 receiver will be switched on. Then, either one or two pulses will give up or down elevator. When three pulses are given the next time, #2 receiver is switched off and you are back to receiver #1 and rudder control. Fig. 1 also shows how a micro-switch may be added to the rudder control servo so that the circuit breaker cam closes this momentarily just after the servo leaves the neutral position. This gives a quick-blip system which triggers an escapement for engine control. Now that we think about it, it does work but how do you classify such a system? Two receivers giving multi control and operated from a single channel transmitter!

• • •

Some builders have experienced a bit of trouble when using the Simpl/Simul system presented by John Worth last year. The major cause of trouble was not inherent with the circuitry, but stemmed from the wrong choice of relays. Mr. Worth points out the following items to help solve your problems and get you in the air.

The S/S is a pulse system and requires a relay which will follow each generated pulse. Contact pressure is the key to good pulsing. Increased relay coil current will increase contact pressure, an important factor at high pulse rates and at extreme pulse widths. Another important point is the rigidity of the contact points. Any weakness here is asking for trouble. The relays deemed best in this category are the Sigmas (4F, 5F and 26F), Gems and Price units. Worth is convinced that a balanced armature is not essential to proper operation of a pulse system. Relays using a non-balanced free-floating armature are taboo. The Gem and Price type relays, having a semi-floating armature, are acceptable.

In summing up the choice of relays for pulse work, especially in the receiver, the Sigma 4F, 5F and 26F are tops, followed by the Gem and Price. We like the Sigma 26F since it is sensitive, relatively immune from vibration and has a good contact arrangement. How do you know if you have a good pulse receiver and relay? First of all, the transmitter must not block or swamp the receiver and the receiver must be capable of receiving the desired pulse rate. For those with a scope this check procedure will not present any trouble. With no scope available, check for a sharp clean click, with no fuzziness. With the transmitter pulser relay operating, the receiver relay should follow it and sound like it was connected directly in the same circuit. Simple pulse systems work reliably provided you use a little care and common sense.

• • •

Mr. Frank P. Schmidt, of Schmidt Television and Radio Service, famed for his work on reed equipment, has been granted U.S. Patent number 2,867,394, covering the servo mechanism actuator (such as the deBolt servos). It would be well for anyone thinking about going into the servo business to obtain this patent. Send 25 cents to the Commissioner of Patents, U.S. Patent Office, Washington 25, D.C.

• • •

Mr. Philip O. Kraft, 1601 Dell Drive, Monterey Park, Calif. sends in the tone receiver shown in Figs. 2 and 3. This is *not* just another tone receiver. In keeping with our policy of checking everything that goes into this column, we built up the unit in breadboard fashion. The punched chassis insulating material from Lafayette Radio was used and the unit was about twice the

(*Continued on page 38*)

STOP! WASTING MONEY

Start Using LEE'S FOR EXCLUSIVE MONEY SAVING VALUES!

Lee's Has Items Every Modeler Needs

THE CEMENT WITH THE GRIP OF STEEL

HOT FUEL PROOF ONE FULL PINT ONLY $1.79

TERRIFIC COMBINATION OFFER!

Here's What You Get . . .

FULL PINT OF CEMENT	$1.79
GLUE GUN & DISPENSER	.98
THREE EXTRA NOZZLES	.25
TOTAL	$3.02

!YOU PAY ONLY!

TWO DOLLARS

GLUE GUN

ONLY 98¢ WITH STORAGE UNIT

SET OF THREE EXTRA NOZZLES FOR GLUE GUN ONLY 25¢ PLUS INSTRUCTIONS

SEND NOW

OFFER IS FOR A LIMITED TIME ONLY THIS INTRODUCTION OFFER—IS ALSO AVAILABLE AT ALL LEE'S AGENCIES

$1.00 $1.00

SEND CASH CHECKS MONEY ORDERS

AT LAST! 1-INCH SHED-RESISTANT BRUSH

ONLY $1.25

SERVO GREASE

• CLINGS TO EXPOSED GEARS
• NEVER DRIES OUT
• SILICONE BASE

ONLY 79¢

OTHER FINE LEE'S PRODUCTS

	4 OZ.	½ PT.	PINT	QT.	GAL.
LEE'S GLOW FUEL		.45	.79	1.40	4.95
LEE'S CLEAR DOPE	.40		1.20	2.19	8.50
LEE'S COLORED DOPE	.45		1.30	2.09	10.95
LEE'S CEMENT	.50		1.79	3.19	10.95
LEE'S GRAIN FILLER	.40		1.20	2.19	6.50
LEE'S BALSA PUTTY	.79		2.98		
LEE'S KWIK KLEEN		.35	.59		
LEE'S THINNER	.35		.90	1.65	5.25

SOLDERING IRON 110 VOLTS A.C. HOUSE CURRENT ONLY $2.98

5 COLOR WIRE 25 FT. LONG MULTI-STRANDED ONLY 60¢

WE ARE R/C AGENCY'S FOR: ACE ARISTO BABCOCK BONNIER BRAMCO C.G. CITIZEN SHIP COBB HOBBY DE BOLT DELTRON ESSCO WILSON GEAR GYRO

COME IN OR MAIL IN to LONG ISLAND'S LARGEST HOBBY CENTER

MANUFACTURERS & DISTRIBUTORS

LEE'S HOBBY SUPPLIES

ORDERS FILLED SAME DAY RECEIVED FROM THE WORLD'S MOST COMPLETE STOCK! TRY US - PLACE AN ORDER TODAY

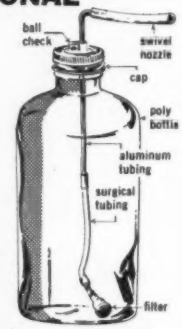
NO ADDED CHARGES FOR HANDLING AND POSTAGE

2072 FRONT ST., EAST MEADOW, L. I., N. Y.

PRODUCTS DESIGNED . . . with the MODELER IN MIND!

PYLON BRAND

SENSATIONAL NEW SQUEEZ-PUMP



First effective fuel pump for models in 20 years. New Pylon Squeez-Pump combines the best features of metal pumps and bulb type. Squeeze the poly bottle and fuel squirts into tank in constant, continuous flow with no dripping. No foam, no air bubbles, no spray with ball check valve. This ball check is the only moving part . . . nothing mechanical to break or go wrong. Visible fuel level; exclusive fuel filter made with stainless steel; special swivel spout of metal and surgical tubing.

8 oz. Bottle and Pump 79c
16 oz. Bottle and Pump 95c
Pump unit for cans 39c

• Check all the Pylon Brand accessories today...at leading hobby counters everywhere.

Sullivan Products
2300 Stratford Rd., Willow Grove, Pa.

1st		Los Alamitos	Feb 16
??	2nd	Los Alamitos	March 15
1st	2nd 3rd	Taft	March 23
1st	2nd	Taft	April 27
1st		Los Alamitos	May 18
1st	2nd 3rd	Van Nuys	June 1
1st	2nd	Taft	Sept 7
1st	2nd	Van Nuys	Oct 5
1st	2nd	Van Nuys	Nov 2
1st	3rd	Beaumont	Nov 29

½A $2.95 A-B $6.95

COMPETITION MODELS INC.
Post Office Box 8095, Long Beach 8, Calif.

Bulletin Board

Just got the word on 1959-1960 rules' changes from AMA headquarters.

Free Flight Gas—Power loading goes up to 173.4 ounces per cubic inch, the same as FAI gas. Here's what models have to weigh:

Displacement	Required Weight
.020 cu. in.	3.47 ounces
.049	8.50
.051	8.84
.061	10.58
.099	17.17
.1525	26.44
.199	34.51
.232	40.23
.299	51.85
.350	60.69
.490	84.97
.600	104.04
.650	112.71

Engine run, flight maximum, tie-breaker and 40-second delay all remain as before but classes B and C are now combined . . . and it seems mighty doubtful that we'll see any more of the big engines in free flight any more.

Actually, this new power loading won't obsolete many models, especially in the large sizes. All you have to do is install a smaller motor . . . an .051 or .061 in your .099 job, an .099 in your .15 job, a .15 instead of a .23, a .19 or .23 for a .35, and so forth. Remember, the power loading's the same as FAI (which is still in the rule book as a separate event), but there's still no wing loading.

Control Line Speed—Pull test goes up to 32 G's (twice as much in pounds as the model weighs in ounces) and single-line diameters are increased for better controllability as follows:

Class	Single line	Two line
½A	.012 inch	.006 inch
A	.018	.010
B & Proto	.022	.012
C & Jet	.028	.016

To line up with international rules, the top displacement limit in Class A is reduced to .1525 cubic inch. Other international rules were not adopted, but an FAI speed job will now be able to compete in our class A. Line length in ½A now goes to 42' with five laps for one-quarter mile. "Tab on line" systems are specifically approved, as are wing flap control systems, but some form of aerodynamic control is still mandatory. Only other major change is that lines must be fully extended for launching.

Outdoor Non-Gas—No change in Unlimited Rubber, but a Junior event is to be studied. Flight limit in Hand-Launch Glider and Jetex is cut to four minutes and you now only get six flights in Outdoor Hand launch. Jetex (or similar) engines now must be "firmly mounted or equipped with a metal tether to effectively prevent power unit from separating from the model". No changes in towline were considered since our rules follow FAI.

Flying Scale—In control line, helicopters are specifically accepted and the engine bonus is reduced to five points for each additional engine. In free-flight, dihedral

(*Continued on page 62*)

NEW from PERFECT

Ready-To-Use GLO-KLIP BATTERY SET

60c
Completely assembled and soldered
Glo-Klip Solderless Connector 39c
Also Look For Perfect Fuel Line, Fuel Tanks, Fuel Pumps, Wheels, Parts

PATENT PENDING

New ANNCO MOTOR CONTROL

ONLY $3.95

The new ANNCO two-speed valve gives you Hi Speed, Lo Speed and Fuel Shut-Off from any Single Needle Valve glow engine. From .049 to .60. Actuated by escapement or servo for RC or third line for U-Control.

• DEPENDABLE OPERATION
• SIZE: ⅞"x⅞"x1¼"
• WEIGHT: ½ OZ.
• FULLY GUARANTEED

SEE YOUR DEALER FIRST!

If he can't supply you, order direct. Send Check or M. O. No C.O.D., please.

ANNCO ENGINEERING CO.
3962 Minnehaha Ave., Dept. M
Minneapolis 6, Minn.

GEM Standard Relays

RC

Same "old reliable"!
High sensitivity . . . new low price!
Gem sold phenomenally.
Your enthusiasm makes new price possible with volume production
. . . *with absolutely no drop in quality*
. . . in fact minor improvements make GEM Standard even better!

$4.25

WEIGH LESS THAN ½ OZ.
SIZE: ¾ H, 17/32 W, 1-1/16 L.
MOUNTING: ONE SCREW
COIL: 5000 OHMS $4.95 AT YOUR DEALER
7,500 & 10,000 ohms at extra cost.
Gem MICRO DeLuxe (adjustable)

1921 W. Hubbard, Chicago 22
JAICO PRODUCTS

YOU'RE ALWAYS IN GOOD HANDS

A WORLD OF SKILLED ACTION IN YOUR OWN HANDS
HOBBY CRAFT
APPROVED DEALER

When You Buy At
The Store Displaying
This Dealer Emblem
(Dealer inquiries invited)
Write To:
CRAFT, MODEL & HOBBY INDUSTRY
30 East 29th St. New York 16, N.Y.

Inside the button-type VO's, top row; and the 800 (with studs) below. Nominal voltage is 1.2. Suffix indicates milliampere hours.

Left—VO-800; Top, L to R: Pack of 4, VO-500's for servo use; the button type, VO-250. Bottom, L to R: Button type VO-500, VO-100.

new look in batteries

by FRED STONG

New alkaline batteries represent major break-through in the RC art. Long life, ruggedness, easy recharging advantages.

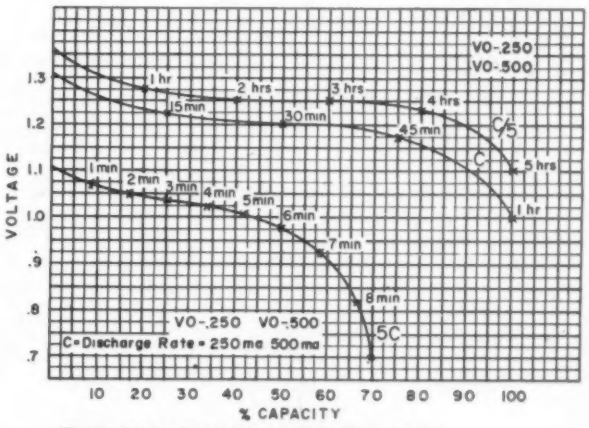
► Ever wonder how to cram in servo batteries so they would be accessible? Or want to fly in cold weather, if only reliable battery power was available? Tired of battery boxes and replacing dry cells? Wet-cells that can be treated like dry cells are the answer—they are light, maintenance free, rechargeable, rugged, very long lived and, in the long run, infinitely cheaper.

This article concerns the CG—VO series alkaline batteries. Seven basic battery types are available: these are VO-100, VO-180, VO-250, VO-500, VO-800, VO-1750 and two VO-500 batteries packaged in a steel cylinder with solder terminals at each end, known as 2VO-500.

The suffix, 100, 250, etc., indicates the milliampere hour capacity rating or electrical capacity of the battery. Using the VO-500 as an example, the 500 milliampere-hour (mah) rating means that the battery is capable of delivering 500 milliamperes (½ ampere) of current for one hour continuously, or 100 milliamperes for five hours, etc.

Connecting VO batteries in parallel increases the total battery capacity proportionally. For example: two 500 mah cells connected in parallel produce a battery of 1,000 mah (one ampere-hour) capacity—not to be confused with the 2VO-500 batteries packaged in the steel cylinder, which are connected in series to double the voltage, without effecting total capacity.

Relating VO capacity directly with standard dry-cell batteries is difficult. However, in model use on a single charge, one VO-100 lasts about the same as one pen-cell; one VO-250 better than paralleled pen-cells; one VO-500 the same as one medium; one VO-800 slightly less than large. Thus, if four medium batteries were being used to power servos, they may be replaced with four VO-500 batteries. About two ounces can be saved in this process. VO-100's, VO-180's for single escapement operation; VO-250's on Mickey Mouse, three and five channels; VO-500's on five- and eight- (*Continued on page 61*)



TYPICAL DISCHARGE CURVES

VO BATTERY SPECIFICATIONS

	VO-100	VO-180	VO-250	VO-500	VO-800	VO-1.75
CAPACITY	100 mah	180 mah	250 mah	500 mah	800 mah	1750 mah
CELL VOLTAGE (nominal)	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V
CHARGING CURRENT (I_c)	2-10 ma	3-15 ma	5-25 ma	10-40 ma	40-60 ma	40-200 ma
CHARGE TIME	$150/I_c$	$275/I_c$	$375/I_c$	$750/I_c$	$1020/I_c$	$3200/I_c$
RECOMMENDED CHARGE RATE AND TIME	8 ma for 19 hours	15 ma for 18 hours	20 ma for 19 hours	35 ma for 21 hours	55 ma for 19 hours	150 ma for 22 hours
TRICKLE CHARGE RATE	1-2 ma	1-3 ma	2-5 ma	5-10 ma	10 ma	10-40 ma
CELL VOLTAGE DURING CHARGE	1.4 V	1.4 V	1.4 V	1.4 V	1.4 V	1.4 V
MAX. CONT. DISCHARGE CURRENT	0.5 A	0.5A	1.25A	2.5A	3.0 A	10.0A
DIAMETER	0.88"	0.96"	1.375"	1.375"	———	2.0"
THICKNESS	0.1875"	0.27"	0.1875"	0.3125"	0.375"	0.55"
HEIGHT	———	———	———	———	3.0"	———
LENGTH	———	———	———	———	1.67"	———
WEIGHT	0.25 oz.	0.4 oz.	0.6 oz.	1.0 oz.	1.6 oz.	3.5 oz.

FOR BETTE

TESTORS
MODEL CEMENT
Hot Fuel Proof
25¢
EXTRA FAST DRYING
FORMULA
TESTORS
MODEL CEMENT
Hot Fuel Proof
25¢
EXTRA FAST DRYING
FORMULA A
TESTORS
MODEL CEMENT
Strong!
25¢
FAST DRYING
FORMULA B
TESTORS
MODEL CEMENT
Strong!
25¢
FAST DRYING
FORMULA B

ER MODELS!

TESTORS

omes in formulations — "A" and "B" — to eet the requirements of every type of odel cowing job. Available in large economy- e tube illustrated) at 25c; also in handy c-size t

ORMUL": guaranteed hot fuel proof . . . stant d for on-the-spot repairs . . . un- ualled quick, easy construction of light- eight m

ORMU": strongest for all woods . . . rongest all metals . . . strongest for con- ructio models.

Testor's Butyrate Dope is the finest for- mulation ever developed for giving a genuinely hot fuel proof finish to engine- powered models. Completely withstands destructive elements in today's high- olvency glo fuels. Applies easily by brush r spray; has excellent hiding power and uild-up; dries to a tough, durable film; omes in a popular range of sharp, bril- iant colors. Available in ¼-pint square ars (as illustrated) at 60c; also in 15c ottles and full pints (12 colors) at $1.50.

THE TESTOR CORPORATION, ROCKFORD, ILLINOIS

WAR TANKS OF ALL NATIONS

EXQUISITELY DETAILED

Scaled 1" to 108", Completely Finished

Exact replicas of world-famous FIGHTING TANKS . . . featuring revolving gun turrets, movable wheels and half-tracks. Official scale models previously used in pre-combat training, recognition, etc.! Super-detailed down to rivet heads, gas tanks, bogies, tools, tracks, suspensions, hatches, etc. Metal-cast, nothing to build or assemble.

U. S. TANKS

WALKER BULLDOG $1.75

Gen. Patton 2.00

Gen. Pershing 1.75

Mot. Carriage KM-3	1.50	Gen. Chaffee	1.50
Heavy M-6	1.75	Slugger II	1.50
General Sherman	1.50	Slugger	1.50
Greyhound	1.25	76 MM Sherman	1.50
Half-Track	1.35	Airborne Tank	1.35
Hellcat	1.35	Armored Car	1.75
Priest	1.75	DUKW	2.00
Gen. Scott	1.35	Tank Recovery M32	2.00
Gen. Stuart	1.35	Landing Tank	2.00
Wolverine	1.35	Utility Tank	2.00
Willys Jeep	1.75	Mod. Tank	1.75
"Weasel"	1.50	Gen. Patton M-46	2.00
Scout Car M3A1	1.50	2½ Ton Truck	1.65
Quack	1.35	Command Car	75¢
King Kong	2.00	Troop Carrier, 2½ T	2.00
Heavy Tank M-48	2.00	Atomic Cannon	5.00
Weapons Carrier	1.75	Med. Tank T43	2.00
Self Propelled 105 MM Tank			2.00
U.S. Self Propelled 155MM Howitzer T99E-1			2.00
U.S. Self Propelled 40MM Twin Gun M-42			2.00
U.S. General Grant Tank M3			2.00

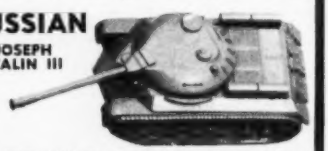
NEW GUIDED MISSILES 1" to 108" SCALE
HAWK $5.00 • NIKE $2.50 • HONEST JOHN $3.00

1" to 108" Scale-Detailed in Plastic

M47 Gen. Patton	1.00	Russian T34-176	1.00
M48 Gen. Patton II	1.00	Russian T3485	1.00
British Centurian	1.00	Ger. M8 Patrol Car	1.00

RUSSIAN

JOSEPH STALIN III



JOSEPH STALIN III HEAVY TANK $2.00.
KV-1 Heavy $1.25. K-2 Heavy $1.75. Light $1.35. T-34 Medium $1.50. T34/85 Medium $1.75. Joseph Stalin $1.75. Russian Heavy SU-100 $2.00

BRITISH

CENTURIAN $2.00

Carden Lloyd Carrier (Mark VI) $1.10. Churchill VII $1.50. Cromwell $1.35. Sherman VC $1.80. Crusader $1.35. Daimler Armored Car $1.25. Valentine $1.25. Mathilda $1.35. Humber Arm. Car $1.35. Churchill $1.35. Univ. Carrier $1.10. Covenanter IV $1.35.

GERMAN

PANTHER $1.75

75 mm Sturmgeschutz $1.50. 8 Wheeled Arm. Car $1.50. Tiger $1.75. PzKw III $1.50. PzKw II $1.25. PzKw IV-G $1.50. 48mm Panzerjager $1.10. PzKw IV-F $1.25. PzKw I Light Tank $1.10. PzKw II Med. $1.50. PzKe 35T $1.25. Armored 1/2 Track $1.50.

JAP. Amphib. Tankette $1.10. Med. Tank $1.25. Tankette $1.10. Lt. Tank $1.10. Heavy-Med. $1.35.

MINIATURE SOLDIERS

Scaled to the Tanks 1"=9 ft. #1 Prone Machine Gunners, Riflemen and Anti-Tank crews, #2 Charging Riflemen with Tommy Gun and Bazooka, #3 Prone Riflemen, #4 Kneeling Riflemen, #5 Charging Riflemen, #6 Charging Tommy Gunners —12 to set $1.65. Available in sets of U. S., German or Russian. Specify Country.

SOLDIERS CATALOG 25c (money back coupon)

Dealers! Jobbers! Regular Trade Prices

POLK'S HOBBIES

314 FIFTH AVE. Dept. MA39 N.Y.C.

Radio Control News

(*Continued from page 33*)

size of the chassis shown. Operation was perfect the first time it was hooked up. We went one step further and substituted transistors, transformers and tubes and found no evidence of this receiver being critical. Sensitivity is the best we've come across and Phil states he has never gone out of range using but 67½v on his transmitter.

As with other circuits given in this column, this is not a regular construction article. However, we feel you should have no trouble building this set if you use the printed wiring chassis or do a neat layout job in the conventional manner. As given, the receiver was designed for 50-54mc operation. We made a coil change for 27.255mc and had no trouble using the following tubes: 1AG4, 6007, DL-66 and CK-5672. The transistors used were CK-722's, with Texas Instrument R-66's being substituted in the first two stages. An RCA 2N408 was used in the final stage with excellent results. The transformers used were the CR-60 (Ace Radio Control), SSO-2 connected backwards and several others which are unavailable to modelers. In other words, this set works well with a wide range of components. It is suggested, however, that unless you have the experience with tone receivers and layout work and components, you stick to the parts list. Next month we'll give the transmitter circuit Phil uses for this receiver. Our experience showed that although 100% modulation gave the greatest current change we were able to obtain reliable operation with about ½ watt of RF modulated 85% at 400 cycles.

Idling current of the receiver, with the meter in the B plus lead, gave 1.4ma with no carrier and .9ma with carrier. Upon receipt of a tone signal the current should rise to about 4ma or more, depending upon the transistors.

• • •

As mentioned in this column several months ago, the possibility of a "universal converter" to attach to the front end of a receiver in order to obtain the needed selectivity, is but a faint hope. There are far too many problems concerned with the design of such a unit for a given receiver, let alone a universal solution. The super-het receiver appears to be the only way to attack the problem of selectivity and we're still planning to present circuitry for such a receiver in the very near future. The circuit is functioning perfectly and uses transistors throughout. Only problem now is to determine if it would be better at 3v or 6v. Five transistors and sub-miniature IF cans make the design about as compact as most tone jobs now available.

• • •

CLUB NEWS

The Weak Signals Radio Control Club of Toledo, O. is presenting their 5th Annual Mid-Winter RC Conference on February 21st and 22nd, at the Miracle Mile Ballroom, 2150 Laskey Road, between the Miracle Mile Shopping Center and By-Pass Rts. 23-24 and 25. The program will include speakers on all phases of the hobby, with manufacturers' displays, movies and refreshments. Everyone is encouraged to bring their RC plane, boat or car, plus unusual equipment. If you have any extra RC gear you want to dispose of, there will be an auction on Saturday night. For further information, write to Mid-Winter Regional, Box 2864, Station B, Toledo, Ohio.

• • •

From The Peoria RC Tattler we learn that the Peoria club is really going all out to have a good flying site for the coming year. Land has been donated and help has been given in putting in a 175' x 60' runway. The PB-1 of Conrad Lange, which was pictured in a recent column, is still turning in excellent flights. More 465mc equipment is being used in this area than in any other around the country, except perhaps in the North Carolina area. Many new planes are being readied for spring testing but Bob Fieldler has given his all to his new boat. For those who think Intermediate class should go, give another thought to the single channel-42 operation set developed by Bob. This multi-phase selector will enable him to start, stop, vary speed, raise and lower anchor, raise and lower flag, steer, blow a siren, turn on lights, fire a rocket, send out a smaller RC boat, plus a few other incidental operations. (Speechless—Editor) Anyone challenge this? Perhaps a photograph of the unit and/or boat would convince the unbelievers, Bob!

• • •

The East Bay Radio Controllers of Oakland, Calif. have a four-acre flying site, surrounded by miles of open fields and complete with a 50' x 200' main runway and a 185' x 25' cross runway. Regular pit areas went at $10.00 each and all members were assessed $6.00. This group also runs a combination spot-landing and bomb-dropping contest. The target is two concentric circles; one 30 feet and the other 100 feet in diameter. Score is determined by multiplying bomb drop points by spot landing points. Within 30' circle, four points; within 100' circle, three points; outside of target area two points; and for a crash (no drop), one point.

• • •

As this was written, the Rules Questionnaire from the AMA was being filled in by modelers all over the country. We hope the RC rules will do something to promote the sport among newcomers and those whose

AUTHENTIC SCALE MODELS

ONLY $2 EACH

PAN AMERICAN World Airways Super-7 Clipper; **CONTINENTAL** Airlines DC-7B; **DELTA** Air Lines DC-7B Golden Crown; **JAPAN** Air Lines DC-7; **NORTHEAST** Airlines DC-6B Sunliner; **SCANDINAVIAN** Airlines DC-7; **UNITED** Air Lines DC-7 Mainliner; **WESTERN** Airlines DC-6; **ALASKA** Airlines DC-6B.

These sturdy snap-together (no messy glue) authentic models make an ideal collection, so order now! Send check or money order (no C.O.D.'s, please) for $2.30 (includes packing, shipping and postage) for each model.

AUTHENTIC AIRCRAFT MODELS

P. O. Box 613, Coral Gables 34, Fla.

pockets are not lined with multi-channel sets. First, should the Intermediate Class be eliminated? No was our answer, because this is the poor man's multi-class. This is the *only* class that has given the RC modeler a chance to use his ingenuity. Anyone can move the number of controls used in a multi job if they have a multi-channel radio. However, it takes a few brains and a little effort to do the same thing on a single channel.

True, it may not be as highly refined but it gives Joe Doakes a chance to branch out, using only his single channel receiver.

Should the radio control flier be required to build his own model? We said yes, since we were under the impression that this was a model building hobby, and not a game to be entered by those who have more money than skill. There's an excuse or reason for other items such as engines, radio sets, etc., but we're still old fashioned enough to think that a model flier should be able to build the model itself.

Next comes the problem of whether or not actuated brakes and steerable tail wheel should be allowed in the Rudder Only class. Our vote was no. Rudder Only should be just that. If you need more gadgetry to help you gather points, you're admitting defeat on the basic problem, that of being able to fly with rudder alone. Last was the decision on whether Rudder Only should be limited to single-channel equipment. Here we gave a big yes. In the beginning, the rudder only class was for the benefit of the new comer into RC work. Using anything other than a single-channel receiver in a rudder-only plane is like putting a 400hp engine in a car used for shopping and driving around town. Unless we get back to the original concept of the rules we may find RC going the way of several other classes of model building. We'll stop now before we boil over.

• • •

From the west coast Pioneer Radio Controllers, the Modulator reports that Karl Peters beat the multi boys with his rudder only job in a spot landing contest. See, there's still hope. November flying saw five planes in the air at one time. They fly 'em close as evidenced by Bill "Mad Man" Ditzler using Walt Addam's 7-foot Goodyear type multi job for a flattop. Gordon Sheherd has a proportional speed system on his ignition Spitfire .65. The points rotate and no change is needed in mixture control. This group is also working out a system for pylon racing so that everyone is on an equal basis. The 20 mph job will have just as much of a chance of winning as the 30 mph job. More on this handicap system later.

• • •

NEW ITEMS

Worldwide Radio Control, Dept. C, 10281 Troy, Oak Park 37, Mich. has published the Worldwide R/C Equipment Guide. This bound book gives not only a listing of practically all radio equipment available but has information on batteries, wiring, flying hints, installations, tips on radio and aerodynamics and many other items. Price is $1.00, redeemable with the first order of $5.00 or more.

• • •

The MIN-X receiver, marketed by the Min-X Radio Co., 6555 Oakland, Detroit 2, Mich., measures 1 x 21 1/16 x 2⅜", weighs 2.5 ounces with case and plug. It is completely transistorized and works from a 3-volt source; is said to be well suited for

(*Continued on page 42*)

another reason for switching to

FORSTER ENGINES

On July 13, 1958, George E. Ganter, Jr. of Reading, Pennsylvania, set a new National Endurance Record of 2 hours, 12 minutes and 1 second, on 30 ounces of fuel, using an UNMODIFIED Forster Model 29R engine.

THERE ARE EIGHT FORSTER MODELS TO CHOOSE FROM:

29R and 35R	Air Cooled	$14.95
29RC & 35RC	Speed Control	$19.95
29RW & 35RW	Water Jacket	$19.95
29RCW & 35RCW	Water Jacket & Speed Control	$24.95

ALL ENGINES FEATURE THE LATEST DEVELOPMENTS THAT ADD SO MUCH TO THEIR OUTSTANDING PERFORMANCE. A SPHERICAL COMBUSTION CHAMBER LIKE LARGE AIRCRAFT ENGINES, A NEW "PRECISION CAST", LAPPED, CAST IRON PISTON, A HARDENED, SQUARE PORTED CRANKSHAFT WITH ALL BEARING SURFACES GROUND AND A FORGED ALUMINUM ALLOY CONNECTING ROD COMBINE TO GIVE THEM TREMENDOUS SPEED AND POWER. THE NEW, HIGH FUEL LIFT CARBURETOR MAKES THEM EASY TO START AND MISERLY ON FUEL!

YOU GET UP TO $5 TRADE-IN ALLOWANCE FOR YOUR OLD ENGINE AT YOUR AUTHORIZED FORSTER ENGINE DEALER. SEND COUPON FOR HIS NAME & ADDRESS AND FREE DESCRIPTIVE LITERATURE.

FORSTER-APPELT MFG. CO., INC.
37 E. LANARK AVE. LANARK, ILLINOIS

NAME .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....

"IT'S VO SERIES BATTERIES For HOBBYISTS and PROS"

The CG VO nickel-cadmium batteries are the latest addition to CG's extensive line of electronic and electrical products for the hobbyist. Rechargeable; Hermetically Sealed; Long Life; Rugged; Indefinite Storage.

Properly Handled and Recharged These Cells Will Last Indefinitely.

CG Electronics CORPORATION

15000 Central, SE, Albuquerque, N. M.

NEW from **PERFECT**

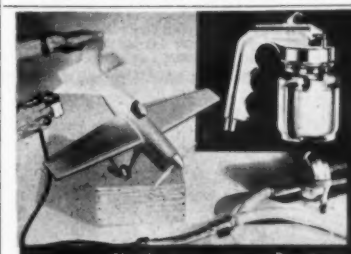
CONTROL LINE KIT

Extra body gives firmer grip. Perfectly balanced. Exclusive "line wrap" feature. Has 54 ft. Dacron line, 2 connectors.

Handle Only, 29c

59c

Also Look For Perfect Fuel Line Fuel Tanks Fuel Pumps Wheels Parts



for that "finishing touch"

hobby spray gun

operates from vacuum cleaner

The ideal spray gun for modelers, hobbyists and the *do-it-yourself fan* . . . paint your model planes, cars, trains, boats, display shelves, etc. For that "finishing touch" get the Hobby Spray Gun . . . and it's . . .

• Simple to operate • Direct spray (minimum waste)
• One filling covers 10 sq. ft. • Nickle plated • No moving parts
• Always in adjustment

only **$3.95**

sprays dope • vinyl • lacquer • enamel • water base paint

Faster, Easier, with Smoother Finish

Comes complete with hose and attachments to vacuum cleaner

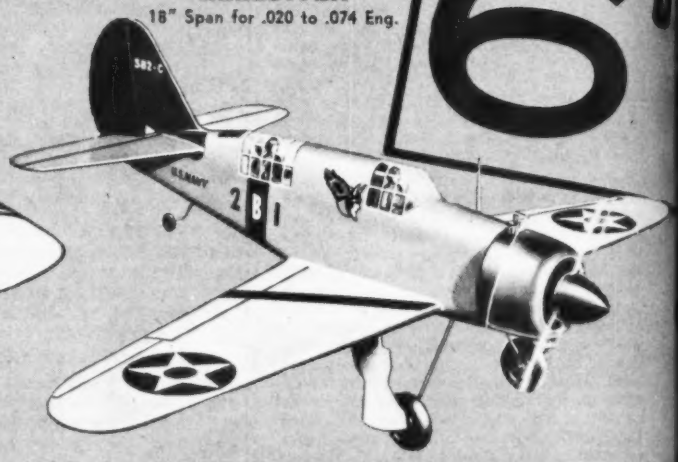
stewart / lundahl co., 7342 Fulton Avenue North Hollywood Calif.

Scientific introduces the brand new "super 6" for

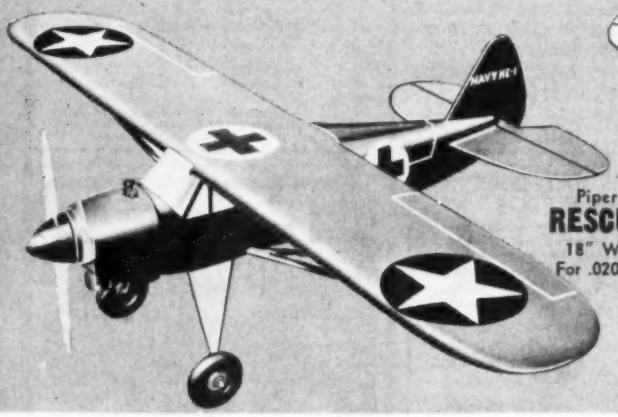
NEW AND WOND

COMBAT MASTER
18" Wingspan Model
For .020 to .074 Engines

Curtiss SB2-C
HELLDIVER
18" Span for .020 to .074 Eng.



6



Piper Cub Military
RESCUE PLANE
18" Wingspan Model
For .020 to .074 Engines

BRAND NEW! SEE THEM AT YOUR DEALERS!

Here's big news for all controline fans! You're looking at 6 sparkling new Scientific models . . . just about the hottest performing planes that ever mounted a half-A gas engine. We call 'em our "super 6" . . . and they're just that. Super fast! Super looking! Super quality! And each one a Super Bargain! A tiny $2.50 each and you're all set for U-Control modeling fun and thrills like you never dreamed possible. Each kit comes super prefabricated with our exclusive pre-carved balsa fuselage and all parts formed or shaped for easy assembly.

KINGPIN $1.69
SPAN: 14" For .020 to .049 Eng.
Brand new profile stunt model with a big 60 sq. inch wing. U-Control flyer. All prefabbed.

AIRCOUPE $2.50
SPAN: 18" For .020 to .074 Eng.
A real "beaut" of a model. It's authentic scale . . . for U-Control flying. Prefabbed. Carved fuselage.

Stuka Dive Bomber $2.50
SPAN: 18" For .020 to .074 Eng.
Something new! This U-Control thriller drops bomb as you fly. Prefabbed with carved fuselage.

Gee Bee Sportster $1.95
SPAN: 18" For .020 to .074 Eng.
Brand new U-Control scale model. An excellent performer. Kit is all prefabricated. Carved fuselage.

No. Am. "Texan" $2.50
SPAN: 18" For .020 to .074 Eng.
Authentic scale model of the USAF AT6 Trainer. A top-notch "fly it yourself" model. All prefabbed.

½-PINT RACER $3.95
LENGTH: 9" For "½A" Gas Eng.
New, improved model. Speeds over 40 m.p.h. Direct wheel drive. Prefabbed formed body, rubber wheels.

Messerschmitt $1.95
SPAN: 18" For .020 to .074 Eng.
U-Control scale flyer of the ME-109 Ger. "Desert Fighter". Prefab model with carved fuselage, etc.

P-40 Flying Tiger $2.50
SPAN: 18" For .020 to .074 Eng.
Our popular U-Control model of this Curtiss World War II fighter. Prefabbed with carved fuselage.

GOLDEN HAWK $2.50
SPAN: 18" For .020 to .074 Eng.
Big expansive wing . . . extremely colorful model for U-Control flying. Carved fuselage, prefabbed.

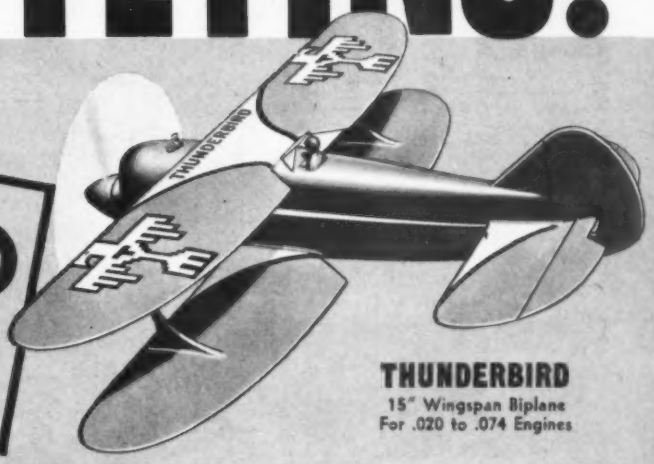
"Supersonic" Missile $2.50
For .020 to .074 Gas Engines
Real "space age" U-Control model of ground-to-air guided missile. Takes off vertically, too. Prefabbed.

SEE YOUR DEALER . . . BE SPECIFIC, SAY SCIENTIFIC

Copyright 1959 Scientific Model Airplane Co.

DERFUL FLYING!

U-CONTROL MODELS at a low 2.50 each



THUNDERBIRD
15" Wingspan Biplane
For .020 to .074 Engines

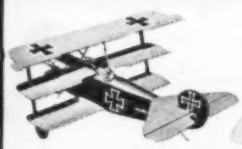
ARMY RACER
18" Wingspan Model
For Gas Engines .020 to .074

Beechcraft
T-34 MENTOR
18" Span For .020 to .074 Eng.

STUNT MASTER $1.95
SPAN: 18" For .020 to .099 Eng.
Very popular ½A stunt plane. Highly colorful . . . terrific action. Super prefabricated kit.

Stits "PLAYBOY" $1.95
SPAN: 18" For .020 to .074 Eng.
One of our hottest looking and performing U-Control planes. Styled from Goodyear Racer. Prefabbed.

"Bluebird" Racer $2.95
For .020 to .074 Gas Engines
Low cost, big value propeller driven race car that speeds over 50 m.p.h. Prefab, carved body.



Fokker Triplane $2.50
3 WINGS For .020 to .074 Eng.
Scale, 3-wing U-Control model has terrific maneuverability. All pre-fab with carved fuselage, etc.

LITTLE SPITFIRE $1.50
SPAN: 18" For .020 to .074 Eng.
Our fly-it-yourself version of the famous hero of the "Battle of Britain." Profile U-Control. All prefab!

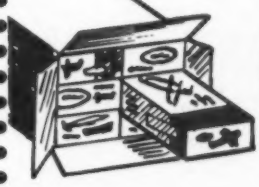
Buckeye Jr. Cabin $3.95
For "½A" Eng., Electric Motors
Here's our sleek cabin cruiser. Has a removable balsa cabin, 14" carved balsa hull - 100% complete.

SCIENTIFIC

SCIENTIFIC MODEL AIRPLANE COMPANY
113 M3 MONROE ST., NEWARK 5, N. J.
If no dealer is available, add 25¢ (postage & packing) to cost of model

Hobby Dealers!

ASK YOUR JOBBER
about our new



6-PAK

Contains one kit each of the new Scientific models shown above . . . plus

FREE ADVERTISING MATERIAL

1959 CATALOG

It's Free! See your dealer or send us a postal card for your copy. It's fully illustrated! Has over 50 exciting gas powered model airplanes, speedboats & race cars.

ALL EYES ARE ON ENTERPRISE'S

NEW SENSATION OF THE YEAR . . . THE Super WHIPSAW

FOR ENGINES .19 .25 .35

DESIGNED EXPRESSLY FOR COMBAT AND STUNT FLYING, THIS HIGHLY PREFABRICATED MODEL CAN BE ASSEMBLED IN A MATTER OF HOURS! IN FLIGHT, IT'S FAST AND HIGHLY MANEUVERABLE. YOU'LL FIND IT EASY TO HANDLE AND PLENTY RUGGED. A NATURAL FOR THE 1959 CONTEST FLYING SEASON!

SPAN: 41"
LENGTH: 21"

Here's what PAUL DEL GATTO, one of the country's foremost design-illustrators of model airplanes, has to say about his latest successful creation . . .

"Fellows: The 'Super Whipsaw' was the natural evolution of the increasingly popular 'Whipsaw,' which, though it was a late entry in the '58 contest flying season, nevertheless, has already made a favorable impression on many of the leading contest fliers. It is my feeling that both the 'Super Whipsaw' and the 'Whipsaw' will be the planes that must be beaten in any combat-stunt event throughout the country. Knowing what these models can do, we are of the opinion that this is going to be next to impossible to do, even if they are being flown by less experienced combat-stunt fliers."

AN UNBEATABLE DESIGN AT AN UNBEATABLE PRICE, ONLY **$2.95**

OTHER COMBAT-STUNT SENSATIONS

31" SPAN

AT ONLY $2.95

HAWKER TYPHOON

FOR .15 .19 .25 ENGINES

The most lavish scale-type combat design ever developed: featuring all parts pre-cut or shaped; large authentic four color decal; full size detailed plans; complete hardware and extra features.

WHIPSAW

31" SPAN

AT ONLY $1.95 LESS ENGINE

FOR .09 .15 .19 ENGINES

EASY TO BUILD - COMPLETELY PREFABRICATED - SHAPED LEADING AND TRAILING EDGES - DIE-CUT RIBS - PLYWOOD DOUBLER - HARDWOOD ENGINE MOUNTS - EXTRA STURDY.

IF NO LOCAL DEALER IS CONVENIENT, MAIL ORDERS WILL BE FILLED BY ENTERPRISE MODELS, INC., DEPT. M-38, MINEOLA, NEW YORK. INCLUDE 25c FOR POSTAGE AND HANDLING.

ENTERPRISE MODELS, INC.
MINEOLA, NEW YORK

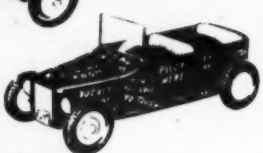
ACE

With easy to shape and finish Balsa wood Ace kit parts you can turn out a collection of models as beautifully detailed and professional as your skill permits. Ideal, too, for novice experience. Either way, you'll be proud you built them!

17 Ace Models

PICK-UP 60c

"T" ROD 60c



JALOPY 60c

HOT ROD $1.00

If no local dealer is convenient, send check or M.O. Include 10c per kit for packing and mailing. No C.O.D. please.

ACE PRODUCTS 60 N. San Gabriel Blvd. Pasadena 8, Calif.

pulse work and can be tuned to any channel between 26.955mc to 27.255nc.

• • •

Midwest Products Co., 6005 E. Dunes Highway, Gary, Ind. announces their new RC Aeronca. Having a span of 46½" and 308 square inches of area, this semi-scale job is suited for .049 to .09 engines. The price of $5.95 includes a formed dural gear, decals and a formed windshield. If this kit is anything like their Esquire, you'll have no trouble building or flying it.

• • •

Ace Radio Control, Higginsville, Mo. has a 1-0-1 milliamp meter by GE for $4.95. A zero center meter is ideal for checking certain pulse systems and in eliminating the possibility of getting the meter hooked up backwards with respect to battery polarity. Shunts can be used to convert to a higher scale reading. Crystals at 27.120mc with .005% tolerance, for Canadian RCer's, are $3.95 and Sprague 60mfd 6-volt electrolytic capacitors at 84 cents are new items. The 1AG4 and CK5672 tubes may be slow in getting to you, along with Sigma 4F relays, due to defense orders.

• • •

A last minute item, and one which we have not thoroughly checked out yet, is the new PC-H Proportional Actuator by the Tomoser Electronics and Manufacturing Co., 217 Vulcan Street, Buffalo 7, N.Y. Measuring 1¼" x 1¾" x 2½", it has a novel printed-circuit switch arm. This particular feature is one of the best we have seen to date and the actuator arm is very rugged. Operation from a 3v source was very good and up to 4½v can be used. The system can be used with a simple one relay fail-safe device. We'll give you more information on the PC-H as soon as it is checked out. Herb Tomoser is really going all out on the pulse angle of control and reports that the results of the Flying Bison meet, given in the January issue, were very encouraging in that only two points difference existed between his system and an 8-channel reed system. This is proof that the beginner can advance into good flying competition with the multi boys and still operate from single-channel equipment.

Correction: Modified Aerocommander, center pic, 24, January issue erroneously credited to Jim McClintick, Peoria, was built by Conrad Lange, Indian City Radio Control Club.

The Snipe

(*Continued from page* 17)

Be sure that the stabilizer is not tilted in relation to the wing and that the two wing halves have exactly the same angle of incidence at the point where they join together.

The tow-hook position shown on the plans is in approximately the correct position but if any irregularity in the tow shows up in the first few flights which cannot be traced to warps or corrected by adjusting the auto-rudder, the tow-hook position will have to be changed. If the model weaves from side to side in increasingly violent maneuvers, the tow hook should be moved back. A steady pull to one side should be corrected by adjusting the auto-rudder for a turn in the opposite direction. If this does not help, the tow hook should be moved forward. These rules apply to all towline gliders.

When the model is towing correctly, the final adjustments for the glide may be made. These adjustments should be done under conditions which would be typical of a normal contest day in your locality.

The glide circle should be wide and

FIRST IN VALUE — CONTROL-LINE MODELS by enterprise — BEST IN QUALITY

"READY-TO ASSEMBLE"
FOR .035 TO .074 ENGINES

CHECK-MATE

HUNTER-KILLER

CHIPMUNK

PT-19

FOKKER D-7

ALL KITS INCLUDE Famous Satin-smooth shaped fuselage and wing... exclusive with Enterprise Models. Other "extra's" such as plastic parts, aluminum cowl, colorful decals and hardware are just some of the many other exciting features!

OTHER POPULAR MODELS
(Span 16" to 18")
• RAZZLE-DAZZLE • X-15
• LIL' DARLIN • MOON-LINER
ONLY $2.50 ea. LESS ENGINE

"EASY-TO-BUILD"
FOR .035 TO .074 ENGINES
$1.95 ea.

MUSTANG

SPITFIRE

ALL KITS FEATURE
• "Satin-smooth" shaped wing & fuselage blocks
• Precision pre-cut parts
• Large colorful decals
• Fully illustrated plan
• Complete hardware-wheels

TRY THESE ALSO
• P-40 Warhawk
• F6F Hellcat
• F4U-5 Corsair
• Howard "Ike"
• Slick Trick

SUPER SCALE
P-40 FLYING TIGER
for .19 to .35 engines.
only $8.95

Wingspan 28", overall length 23½"

• Exact Scale ¾" to 1' • Carved and Hollowed Fuselage • Shaped Edges, Razor-Cut Parts • Giant 4-color Authentic Decals and Markings of the Famous Flying Tiger Squadron • Lavish Plans and Instructions • "Completely-complete" Kit with Many Accessories.

ENTERPRISE MODELS, INC.
MINEOLA, NEW YORK

M.M. SERIES • A.A. SERIES
Perfect for .020 to .049 engines

SPAN 14"

CURTISS HAWK P6-E

OTHER FAVORITES
• MR. MULLIGAN
• AT-6 TEXAN
• ME-109
AT ONLY $1.29

FEATURES:
• PRE-CUT PARTS
• SATIN SMOOTH WING
• COLORFUL DECALS
• COMPLETE HARDWARE-WHEELS
• FULLY ILLUSTRATED PLAN

FOCKE-WULFE FW-190
SPAN 16"

TRY THESE ALSO
• NORTHROP GAMMA
• CAUDRON RACER
• SPAD
AT ONLY $1.50

IF NO LOCAL DEALER IS CONVENIENT, MAIL ORDERS WILL BE FILLED BY ENTERPRISE MODELS, INC., DEPT. M-38, MINEOLA, NEW YORK. INCLUDE 25c FOR POSTAGE AND HANDLING.

wandering, tighter if conditions are windy. Be careful to note what happens when the model is in a thermal. The circle should be tighter, and absolutely no stalling can be tolerated.

Do not avoid flying the Snipe in wind because of the belief that high aspect ratio wings are not strong enough. The Snipe can take the wind.

Men and Ships

(*Continued from page* 19)

agreed to hold the next contest in Italy.

The 1920 and 1921 events, both in Venice, were scarcely more satisfactory since in both events only Italian machines actually "raced." Bolongna in a Savioa S.19 won the 1920 event at 107.2 mph, and de Briganti was successful the next year on the Macchi M-7 at an average 111 mph. If Italy, with her two consecutive wins, took the 1922 race as well, she would according to the contest rules keep the Trophy for all time.

Naples was the venue for the sixth Schneider contest, in which a three-machine Italian team was opposed by a single British entry, a Sea Lion II biplane flying boat specially prepared at their own expense by Supermarine and Napier. Capt. H. C. Biard in the Sea Lion flew a cunning race, to win at an average 145.7 mph, hotly pursued by the Italians.

Biard and the modified Sea Lion III were among the British challengers for the 1923 race at Cowes, but he and the French competitor, Hurel on a CAMS 38, were outclassed by a strong American challenge from Lts. Irvine and Rittenhouse on Navy Curtiss R-3 racers. As distinct from the largely stock designs that hitherto had competed, the Curtiss machines were race-bred from the original 1921 high-speed Pulitzer-winning machine built specially for the U.S. Navy. Henceforth, special racers began to be developed by the other competitors, the speed curve took a steep upward turn, and design and engineering advances occurred which gave the later Schneider races their absorbing technical interest.

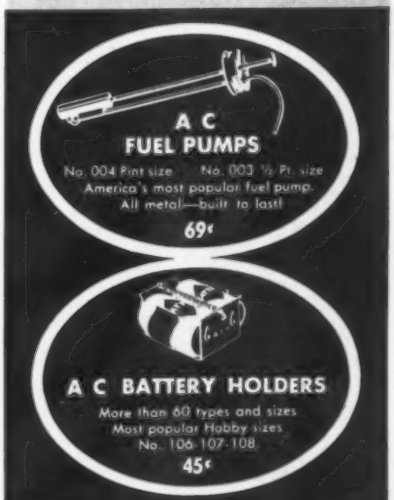
Rittenhouse won the 1923 race at 177.38 mph. And the following year the United States could have retained the Trophy for a second term, for Italy withdrew her team, and the British entry—the Gloster 2, half-heartedly subsidized by the Air Ministry—sank after landing during its trials at Felixstowe. Very sportingly, and against precedent, the U.S. decided to hold over the race until the following year. As it turned out, she thereby lost her chance to win the Trophy outright, for at Baltimore in 1925 Lt. James H. Doolittle beat British, Italian, and U.S. Navy opposition in his Curtiss R3C-2, winning at 232.57 mph. Had the United States won the 1924 race by a "fly-over", in 1925 she would have found herself the permanent holder of the Schneider Trophy.

Great Britain could not assemble a team in time for the eighth race in 1926, but formidable opposition came at the last moment from a full Italian team flying sleek new Macchi M-39 monoplanes powered by 800-hp Fiat engines. The R3C-2 was again in the U.S. team together with the other 1925 machines, re-engined as the R3C-2 and R3C-4. Although in the race Lt. Cuddihy's R3C-4 closely tailed de Bernardi in the M-39 until forced down with fuel pump failure, the Italian won in convincing style at 246.496 mph. The Trophy went back to Italy, and it was still anyone's contest.

Great Britain girded her loins, so to

(*Continued on page* 46)

All-American
HOBBY ACCESSORIES
by
AUSTIN-CRAFT



MADE IN AMERICA FROM AMERICAN MATERIALS
Write for FREE A/C Catalog
AUSTIN-CRAFT CO.
431 S. VICTORY • Dept. M, BURBANK, CALIF.

TOP FLITE

GAS KITS TOP THEM ALL!

Three terrific planes designed by George Aldrich, America's greatest stunt champion!

THESE ½-A MODELS SWITCH FROM CONTROL LINE TO FREE FLIGHT & BACK AGAIN IN A JIFFY!

Each kit contains: formed landing gear, push rod, elevator horn, wheels, bell crank, firewall, decals, and all necessary hardware. All parts are completely finished. Only select Grade-A balsa is used. Full size detailed plans with many step-by-step construction features making it easy to build and fly.

- Ideal for beginners . . . and experts, too!
- All feature Famous JIGTIME CONSTRUCTION for easy, no-mistake assembly!

PIPER CUB

27 inch wingspan. This ½A scale flying model is so realistic that only the size makes it a model instead of the real thing! Includes formed plastic cowl, die cut clear plastic windshield.

Kit No. G-8

$2.50

RASCAL 27

27 inch wingspan. An outstanding favorite with all ½A model builders for years! Includes die cut clear plastic windshield.

Kit No. G-5

$1.95

ARROWJET 24

24 inch wingspan. Has the dash and class of modern Navy prop-jet design. Ideal for ½A gas engines. Includes formed clear plastic canopy.

Kit No. G-7

$2.50

Ask your dealer for a **FREE** Top Flite PROP CHART

the NOBLER CHAMPIONSHIP CONTROL LINE

STUNT SHIP

Kit No. N-1

$8.95

Wing Area 550 sq. in.
Wing Span 50"
Length 38½"
Eng. Sizes .19 to .35

THE "WINNINGEST" STUNT MODEL EVER FLOWN . . . Won More Nationals and International Stunt Championships Than Any Other Model!

these CONTROL LINE COMBAT and STUNT TRAINERS are among America's greatest . . . two of the most successful planes ever designed!

Engine sizes .15 to .35
Wing Span 42"
Wing Area 390 sq. in.
Length 28"

Kit No. N-2

FLITE STREAK $3.95

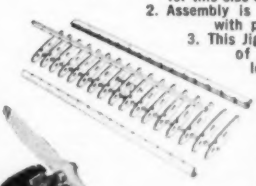
FLASH!
1958 NATIONALS WINNER of BOTH Senior and Junior COMBAT

BOTH OF THESE KITS CONTAIN:

- Full length shaped and notched leading and trailing edges and spars.
- Shaped fuselage.
- Select grade A balsa.
- Printed and precision die-cut balsa and plywood parts.
- Formed landing gear and push rod.
- High grade silkspan.
- Hardwood engine mounts.
- Complete detailed plans with many step-by-step construction features making it easy to build and fly.

HERE'S WHY THEY'RE SUPERIOR MODELS:

1. Full length leading, trailing edges and spars. Require NO SPLICING, an exclusive feature for this size and type of model.
2. Assembly is easier, faster — with perfect alignment.
3. This Jigtime construction of notched spars, leading and trailing edges allows you to construct a symmetrical wing on a flat surface without special jigs, also making it warp resistant.



JR. FLITE STREAK

Kit No. N-3

$2.95

Engine Sizes .15 to .25
Wing Span 31"
Wing Area 230 sq. in.
Length 22"

by the makers of famous TOP FLITES and POWER PROPS . . . the Props of Champs!

AVAILABLE AT ALL LEADING HOBBY SHOPS

TOP FLITE MODELS, INC., 2635 S. Wabash Avenue, Chicago 16, Illinois

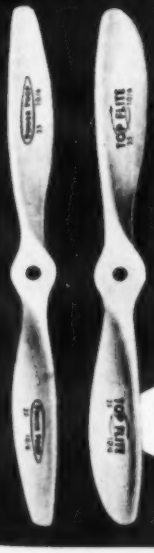
TOP FLITE

The **CHAMPS WIN** *with* **TOP FLITE & POWER PROPS** *for the 11th STRAIGHT YEAR!*

NEWS FLASH!

Here are the WINNERS '58 NATIONALS

GLENVIEW, ILLINOIS



Choose these famous TOP FLITES and POWER PROPS and YOU'LL be right up there with these Nationals winners!

TOP FLITE

ALL THOSE LISTED ARE FIRST PLACE WINNERS

½A SPEED SENIOR
Edw. Pilkington
Hialeah, Fla.
99.3 mph
Engine: K & B 049
Fuel: This Is It
PROP: 4½-7 POWER PROP
Plane: Original

FLYING SCALE CL OPEN
Tom Dean
Corpus Christi, Tex.
330 points
PROP: 9-6 TOP FLITE

½ A GAS FF JUNIOR
Bill Hunter
Sun Valley, Calif.
Time: 823.0
Engine: Holland Hornet
Fuel: Thimble Drone Racing
PROP:
5¼-4 PLASTIC TOP FLITE
Plane: Satellite

PAA CLIPPER CARGO OPEN
Lawrence Conover
Cedar Rapids, Ia.
Wt. Lifted: 137.25 oz.
Engine: Thermal Hopper
Fuel: Nitro X
PROP:
6-3 PLASTIC TOP FLITE
Plane: Pelican

A GAS FF OPEN
Charles E. Diller
Riverside, Calif
Time: 1906.2
Engine: Torp 19
Fuel: K & B 100
PROP: 9-4 TOP FLITE
Plane: Ramrod 600

RADIO CONTROL (MULTI)
Bob Dunham
Norwalk, Calif.
213.0 points
PROP: 11-6 TOP FLITE

NAVY CARRIER JUNIOR
Alfred Gonzales
Woodside, N. Y.
Time: 308.02
PROP: 10-8 TOP FLITE

STUNT OPEN
Robert Randall
Indianapolis, Ind.
548.5 points
Engine: Fox 35
Fuel: Fox Super Fuel
PROP:
10-6 NYLON TOP FLITE
Plane: Original

NAVY CARRIER SENIOR
Robert Heminway
Audubon Park, N. J.
Time: 490.99
PROP: 11-8 TOP FLITE

FLYING SCALE CL JUNIOR
Jim Veasey
Evansville, Ind.
244 points
PROP: 11-4 TOP FLITE

RADIO CONTROL FLYING SCALE
William F. Bertrand
Allen Park, Mich.
88 2/3 points
PROP: 12-4 POWER PROP

JR NATIONALS HIGH POINT WINNER
Dennis Alford
San Diego, Calif.
PROPS: TOP FLITES Used in all gas events.

New ½ A Record
R.O.W. GAS JUNIOR
Burt Ballentine
N. Hollywood, Calif.
Time: 11:31.2
Engine: Holland Hornet
Fuel: Thimble Drone Racing
PROP:
6-3 NYLON TOP FLITE
Plane: Satellite 320

A GAS FF SENIOR
Ray La Hood
Omaha, Nebr.
Time: 996.0
PROP: 9-4 POWER PROP

PAA CLIPPER CARGO JR-SR
Donald A. Garnett
Fairfax, Ia.
Wt. Lifted: 151.25 oz.
PROP: 6-3 NYLON TOP FLITE

½A GAS FF SENIOR
Dick Mathis
Dallas, Tex.
Time: 1153.0
PROP: 6-3 TOP FLITE

R.O.W. GAS OPEN
Vic Cunnyngham
Baldwin Park, Calif.
Time: 824.0
PROP: 9-4 TOP FLITE

BC GAS FF SENIOR
Charles Gilliland
Tulsa, Okla.
Time: 1096.0
PROP: 11-4 TOP FLITE

R.O.W. GAS JUNIOR
Bill Hunter
Sun Valley, Calif.
Time: 737.2 (New Record)
Engine: Torp 23
Fuel: Ohlsson 200
PROP: 9-4 TOP FLITE
Plane: Satellite

COMBAT OPEN
William F. Arrowsmith
Rochester, N. Y.
PROP: 10-6 POWER PROP

FLYING SCALE FF OPEN
Karl Spielmaker
Grand Rapids, Mich.
132-2/3 points
PROP: 6-3 TOP FLITE

NAVY CARRIER OPEN
Stephen Bobin
Fairview Park, Ohio
Time: 463.0
Engine: McCoy 60
Fuel: Nitro X
PROP: 10-8 POWER PROP
Plane: Original

TOP FLITE MODELS, INC., 2635 S. Wabash Ave.—Chicago 16, Ill.

Be Modern –WITH JETEX POWERED MODELS

AMERICAN TELASCO TAKES PRIDE IN PRESENTING
... THE FABULOUS
Blue Angels **"COUGAR"**
GRUMMAN F9F-8
POWER: JETEX SPACEMASTER "600A" OR SCORPION "600"
DESIGNED AND ENGINEERED BY: *Paul E. Del Gatto*

INTRODUCING A NEW ERA IN AUTHENTIC SCALE TYPE MODEL AIRCRAFT EXPRESSLY DESIGNED FOR THE SAFEST, MOST ECONOMICAL REACTION TYPE MOTORS (JETEX) AVAILABLE IN THE WORLD TODAY!

THIS KIT FEATURES THE MOST MODERN TECHNIQUES IN MODEL FABRICATION ... PERMITTING QUICK AND ACCURATE ASSEMBLY; COMPLETE DOWN TO AUTHENTIC DECALS AND COMPLEX PARTS FORMED FROM LIGHTWEIGHT PLASTIC

DARING IN DESIGN!
EXCITINGLY REALISTIC!
TERRIFIC PERFORMANCE!
WING SPAN: 28"
LENGTH: 30"
TERRIFIC VALUE... ONLY **$4.95** LESS ENGINE

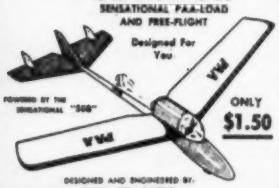
READY-TO-FLY MISSILES
(Complete with Jetex "50B" Engine and Fuel)

LENGTH 21"
ONLY **$1.98** each

SPACE "EXPLORER"
POWER JETEX "50B"

WING SPAN 14"
ONLY **.98c** (Less Engine)

NOW IT'S ...
"JETSPUR"
SENSATIONAL PAA-LOAD AND FREE-FLIGHT
Designed For You

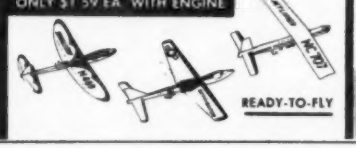


POWERED BY THE SENSATIONAL "50B"
ONLY **$1.50**
DESIGNED AND ENGINEERED BY: PAUL DEL GATTO

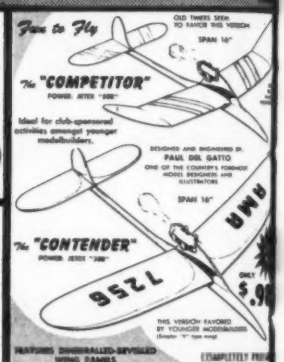
JUPITER
A HIGH-PERFORMANCE JET AND PAA-LOAD FREE-FLIGHT DESIGN
ONLY $1.98

SPAN 32"
DESIGNED BY: LARRY CONOVER
POWER IT WITH THE AMAZING **PAA-LOADER** JETEX "100"

TRY ONE OF THESE MODELS— ONLY $1.59 EA. WITH ENGINE



READY-TO-FLY



AMERICAN TELASCO LIMITED
DEPT. MN-3 HALESITE, NEW YORK

speak, in readiness for the 1927 event in Venice. For the first time full Air ministry support was given, with proper service personnel and special machines. No less than seven racers were ordered from British manufacturers. Those which went to Venice were three Supermarine S.5's and two Gloster 4's, all Napier Lion-powered, and the Short Crusader with an aircooled Bristol Mercury engine. The Italian team was strong, too, with the hush-hush new Macchi M-52's.

During the race all the Italian entrants and Kinkead's 289-mph Gloster 4 dropped out with various mechanical troubles, leaving the two S.5's to complete the course. Webster on the geared S.5 was the winner at 281.656 mph, with Worsley second on the ungeared machine at 272.96 mph.

It having been agreed to hold the race every two years thereafter, the next event –at Ryde, Isle of Wight–was in 1929. This event saw the mating of the genius of R. J. Mitchell, designer of the Supermarine racers, and the Rolls-Royce engine team. Mitchell evolved from his earlier Schneider designs the beautiful S.6, powered by a special race engine based on the 825-hp Rolls-Royce Buzzard, giving a bit under 1950 hp at 3000 rpm. Gloster came up with a formidable team-mate, the Gloster 6 monoplane with a racing Napier Lion VIID giving around 1200 hp, which did not eventually compete due to fuel system faults.

The Italians requested–but were refused–extra time to perfect their latest machines, but nevertheless put in a strong team headed by the new 350-mph, 1400-hp Macchi M-67's. The United States entry, Lt. Al Williams in a Mercury mid-wing monoplane, was refused Navy permission to race–the second time he had tried and failed to compete in the Schneider event.

The race started on September 7th at 2 pm, Waghorn getting away smartly in his S.6, followed by Dal Molin's Macchi M-52 and then in succession by the S.5, a Macchi M-67, the second S.6, and the other M-67. Molin flew a fine steady race to second place in the veteran M-52, but both the M-67's dropped out early, Cadringher's when he was blinded and nearly suffocated by exhaust fumes, and Monti's with a broken water pipe which caused him some bad scalds. Waghorn flew a consistent race in the S.6 number 2 to win at 328.63 mph, with Acherley bidding for second place at 325.54 mph despite difficulty in keeping on course due to the loss of his goggles–in fact, he was later disqualified for cutting inside one of the markers.

Three days later S/L Orlebar took up the Schneider-winning S.6 and set a new world's speed record of 355.8 mph.

For two events in succession, therefore, full Government support–in the form of adequate funds and the formation of the High Speed Flight–had brought home the Trophy to Britain. With the better part of two years to prepare for the 1931 race, and with a faultless performance from the 1929 machines and engines as a basis for an even better technical effort, Britain had a good chance of winning the Trophy outright. Month after month went by, however, without an official announcement as to the Air Ministry's 1931 Schneider plans. A nation-wide outcry followed the eventual long-delayed decision by an economy-minded Labor Government that official support was to be withdrawn and that any further entry would have to be left to private enterprise. Bearing in mind the prohibitive cost even of modifying the existing machines, this seemed to mean that Britain would be unable to provide machines for the next contest, although a nucleus of the High Speed Flight personnel remained in being for experimental work.

The ruin of Britain's hopes of keeping the Schneider Trophy were brought to the attention of Lucy Houston, the richest woman in England. In 1933 Lady Houston financed the British Houston Flight over Mount Everest, but the deed for which British aviation is most indebted to her was her response to this present crisis.

Something approaching $300,000 was needed, and she straightway wrote a check which put new life and hope into the Supermarine and Rolls-Royce design office staffs. As only a few months remained before the event, there was no time to evolve a completely new design. Instead, the S.6 combination had to be developed to a point where it would stand a chance against scheduled French and Italian opposition.

Rolls-Royce had promised an extra 400 hp or so from the 1929 engine, and the Air Ministry therefore ordered Supermarine to build two new improved machines, S.6B's, for the main race effort, and modify the two 1929 S.6's as S.6A's as a second string.

Beginning work on the engine, Rolls decided to increase the engine speed and supercharger gear ratio, and enlarge the air intake. A new type of connecting rod and a modified crankcase and balanced crankshaft were fitted. In an effort to bring down fuel consumption (because of new contest regulations requiring two succeeding take-offs and thus extra fuel), sodium-filled exhaust valves as developed in the United States were successfully used to

(*Continued on page* 48)

LAFAYETTE RADIO -- RADIO-CONTROL HEADQUARTERS

ONLY 14.95

LAFAYETTE SPECIAL RADIO CONTROL TRANSMITTER

ORDER ITEM #1

Newly designed, crystal controlled, single channel transmitter is completely assembled tested and guaranteed. Operates on exam-free 27.255 MC R/C band. Includes 27.255 MC crystal, tube and 6-section telescoping antenna. Range approximately 1 mile. Measures 8½" x 2¾" x 1¾" exclusive of antenna. Less Batteries. Shpg. wt., 2½ lbs.

F-249 —R/C TRANSMITTER (Less Batteries).... **14.95**

BATTERIES

3-Burgess U30..... 1.75

1-Burgess 2..... .13

LAFAYETTE SPECIAL R/C RECEIVER

ORDER ITEM #2

Completely factory wired and tested receiver, extremely sensitive and stable. Completely enclosed—ideal for use around water; case may be removed if desired. Features external fine tuning control, antenna lead, and plug for external power and actuator connections. Requires one 1.5V and one 45V battery whose size depends on size of model. Complete with 354, but less batteries. Size 3" x 2¾" x 1½". Ideal companion to F-249 Transmitter. Shpg. wt.. 8 oz.

F-208 —R/C RECEIVER (less Batteries).....Net **8.95**

SPECIAL COMBINATION OFFER

Consists of R/C Transmitter (F-249), and R/C Receiver (F-208)

(ORDER ITEM #3) **F-259** — Combination ....Net **22.90**

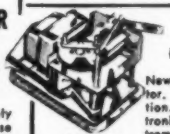
NEW! 18" CABIN CRUISER

AUTHENTIC - FACTORY ASSEMBLED - READY-TO-RUN

Flashy 18" Cabin Cruiser with molded styrene plastic hull and machine marine fittings. Contains servo-mechanism and heavy duty screwmotor. Additional below deck space for receiver and batteries. Complete package of boat, motor, servo, F-249 Transmitter and F-208 receiver, less batteries. Shpg. wt., 12 lbs.

(ITEM #5) **F-354** Completely operating Combination Net **42.50**

(ITEM #6) **F-350** Boat with Motor and servo only, less batteries, shpg. wt., 8 lbs. .....Net **22.50**

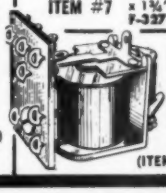


ORDER ITEM #7

R/C ELECTRIC SERVO MECHANISM

A DESIGNED AND PRICED FOR HOBBYISTS

New, powerful, motor driven R/C actuator. Delivers positive, instantaneous action. Provides selective steering and electronic, automatic return to neutral. Extremely efficient when used with model boats and land vehicles. Only 2½" x 2" x 1¾". Includes instructions and linkage. **F-327** .....Net **4.95**



LITTLE "JEWEL" R/C RELAY

The Mighty Mite of the R/C field. Weighs less than ½ oz.! Only ¾"H x 17/32"W x 1-1/16"L. Highly sensitive—extremely rugged. Pulls at 1.4 Ma—drops out 1.2 Ma D.C. S.P.D.T. 5000 ohm coil.

(ITEM #8) **F-260** .....Net **2.75**

FREE

1959 CATALOG

260 GIANT-SIZED PAGES

The newest and largest assortment of Electronic, Radio and TV parts, Hi-Fi and Public Address Components and systems, Test Equipment, tubes, Transistor Kits and miniaturized components for transistor circuitry, Ham Equipment, Builders Kits, Tools, Books, Microscopes, Binoculars, Telescopes, Cameras, and Drafting Equipment—**ALL AT LOWEST PRICES**—Catering to the economy minded dealer, serviceman, engineer, technician, experimenter and hobbyist. **CRAMMED FULL OF MONEY SAVING BUYS. SEND FOR YOUR FREE COPY TODAY.**

CUT OUT AND PASTE ON POST CARD

Lafayette Radio MC-9 P O BOX JAMAICA 33 N Y

- ☐ Rush Free 260 Page Catalog
- ☐ Please Send Item(s) #.....
- I enclose.....

NAME .....

ADDRESS .....

CITY .....

ZONE ..... STATE .....

☐ **Send FREE CATALOG 590**

WYLAM PLANS

EIGHT 14 x 20 IN. PLATES TO EACH SET!

For the first time in sets—YOU asked for them! Now available!

Set = W-1

- SOPWITH CAMEL — Famed WW-1 English pursuit
- WRIGHT MODEL A — A true pioneer—a gem!
- WRIGHT MODEL B — Another collector's item
- SE-5A — WW-1 pursuit—a favorite

Set = W-2

- SPAD S-XIII C-1 — Renowned WW-1 French pursuit
- CURTISS MODEL A — A competitor of the Wrights
- SPAD S-VII — Great French WW-1 pursuit
- WRIGHT FLIER — Man's first flyable plane

Set = W-3

- CURTISS P-1 HAWKS — Glamorous Army fighters
- F11C-2 GOSHAWK — Navy carrier fighter
- P-6E HAWK — Greatest of all the Hawks!

Set = W-4

- REPUBLIC P-47D — The wonderful Thunderbolt
- SPITFIRE 2 — Battle of Britain hero
- MESSERSCHMITT Me-109J — WW-2 German fighter
- CURTISS P-40D — American WW-2 Warbird

Just off the press! two new Wylam sets

Set = W-5

- GRUMMAN F6F-3 — Navy's shipboard fighter
- DOUGLAS C-54 — Air Force transport
- DOUGLAS A-26 — Invader—now B-26
- BOEING B-17 — The Flying Fortress
- CONSOLIDATED B-24 — Liberator—a heavy!
- CURTISS A-25 — Navy divebomber

Set = W-6

- CONSOLIDATED PBY — That Catalina!
- NORTHROP P-61 — Black Widow!
- BOEING B-29 — Famed Superfortress
- BOEING C-97 — Military transport
- MARTIN B-26 — Medium bomber

For over 20 years, William Wylam has been an acknowledged master of the detailed drawings of historically famous airplanes. MAN is happy to comply with the many requests for Wylam plans by making available this selection

MODEL AIRPLANE NEWS
551 Fifth Ave., New York 17

EACH SET . . . $1.00 ALL SIX . . . $5.00

Enclosed is for plan sets numbered in boxes below

Please print your number DISTINCTLY in box for each plan you desire.

PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =

NO STAMPS PLEASE

NAME PLEASE PRINT

ADDRESS

CITY ZONE STATE

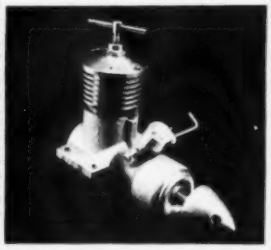
John Maloney's M.A.N. Memo No. 2

No chatter, just facts this time. We have an OS .3S. plug that get bright enough to read by on 3 volts. It will start even the crankiest engine on a zero day. The price is only 37½¢, get a half dozen. The OS 3S is short, fits and runs most all engines. Has good 2-speed characteristics. Tell your dealers to order them from us for you today. I tried 5 different grades of silk on my Smog Hog before selecting WORLD ENGINES SILK — close grain — 2 coats of dope fills it — only 89¢ yard. We now have OS 12/4 props at 45c ea. We can now ship the OS .099 from a reasonable stock, this engine holds one race car record already. An excellent choice in Midwest's new R/C Aeronca $5.95. The OS .099 comes with one of these 2-3v plugs installed — A hot U/C combo is the OS .099 and the $1.50 PDQ Baby Clown.

2-3 V. 37½¢

O.S. .09 cu. in. 4.95

A mark of Quality on the OS .099 are the 4 head bolts, the steel cooling fins and note that it can be either beam or radially mounted. We have been holding our breath for the David-Anderson .15 twin ball bearing racing diesel for two years, IT'S HERE. D-A is an old master whose prestige is legend in the annals of precision workmanship. This .15 is for the F.I.A. competitor who out for blood and to whom price is the least consideration. We have run one of these engines up to 22,000 R.P.M. — the engine has that D-A trademark of easy starting, price $15.00. This engine is custom made and will not be available in great quantity. Notice the collet type compression screw lock, the spinner, the rachet type needle, the venturi insert, the honest motor mounts. It's easy to believe that Jan D-A is from a prominent family of gold and silver smiths in Oslo.



DAVID-ANDERSEN .15 B.B.

Notice our adv. on the SM-2 in the Christmas issue of American Modeller? It was $19.95. Now we are pleased to announce that the price is $14.95. This receiver has the following 1 AG4 tube detector, transistor in second stage. This means that the receiver is working easy until you push the button and then it really yanks the relay home when you want action. The SM-2 is one of Jack Port's "Controlaire" products. Port is unusually fussy about what he puts his Controlaire name on. All of these receivers are built and serviced under his immediate supervision. B-supply is 45 volt, A Battery is 1½v. This receiver is small enough for a L/W Kitten with our OS SN escapement $2.95. Why buy a kit when you can get an assembled receiver with over 4 MA current change, complete with relay for $14.95? No gas tubes to go bad, I personally think you'd be crazy to consider anything except the SM-2 in the way of an inexpensive, but first quality carrier wave receiver. SM-2 excellent for pulse. We hope you will get your World Engine products from your dealer. Ordering thru the mail is for the birds unless your dealer just won't cooperate with you. In such cases we will! Send $1.00 cash or check for C.O.D. shipments.

SM-2

SM-2

NOW $14.95 ~~$19.95~~

Pictured on the right is a typical shipment of engine parts from OS. Drop in and examine our parts inventory.

Canadian Customers Write To: Acadimy: 2864 Eglinton Ave., W. W. Toronto 9, Ont., Canada

We will fill direct orders but we do not take trade-ins out of courtesy to the hundreds of dealers we sell to.

WORLD ENGINES

6700 Montgomery Road

Cincinnati 36, Ohio

allow a leaner mixture. Carbureters had to be redesigned to prevent flooding in flat turns, and fuel ingredients carefully blended to balance power and consumption. In the end, practically the whole engine was redesigned, so close had been the design limits on the 1929 models.

All this added up to frantic test work on the engines during the short months preceding the race. By the end of April, 1931, engine life on the bench was only an average 20 minutes before some kind of failure. By the end of July, 30 minutes was the mean. On August 3rd a 58-minute run was accomplished at 2360 bhp, and about a month before the race, on August 12th, a full hour's trouble-free run was completed at 2330 bhp.

The S.6 series racers were basically fairly conventional all-metal structures, although the monocoque fuselage featured very close spacing (about six to seven inches) of some 46 light frames, and the motor bearers were extended rearward almost to the tail to form the main longitudinal members. Behind the large engine bay was a sloping bulkhead with fireproof, metal-asbestos sandwich lower half which kept a deal of heat away from the pilot. Wings were of the two-spar metal construction with 9¾-inch rib spacing.

Main design problem with the S.6, as with other contemporary Schneider designs, had been the adequate dissipation of the enormous heat output from the racing engine. Honeycomb radiators thrust out into the airstream would have provided the best solution to the difficulty but ruined the streamlining. Instead, practically the whole wing covering was made in the form of thin double-skin radiators with 1/16-inch between-walls water passages, screwed as units to the wing structure. Later, as cooling was still inadequate, louvres were cut in the underside of the wing to direct cooling air on the insides of the radiators.

Main oil coolers were in the form of exterior corrugations on the sides and belly of the fuselage extending practically its whole length. The fin and part of the rear decking formed the integral oil tank, which therefore obtained some additional cooling from the slipstream.

As mentioned already, for 1931 the seaworthiness trials were to be done immediately before the start, involving a take-off at full load, a landing, a brief taxi, and then another take-off for the race proper. So extra fuel had to be provided to leave enough for the whole seven-lap event. All-up weight was 19 per cent greater than in 1929, which meant that extra buoyancy was needed from the floats. Redesign of the floats thus became of paramount importance, and following extensive water tank and wind tunnel tests a design markedly superior to that used in 1929 was evolved. Variations of the new float design were fitted to all four machines, those on the S.6A's being two inches shorter than the S.6B's. The main 110-gal. fuel tank was built into the starboard float to offset the weight transfer (estimated at 500 lbs.) caused by engine torque. Total fuel capacity was 161½ gal., of which 48 were in the other float and 3½ in a header tank.

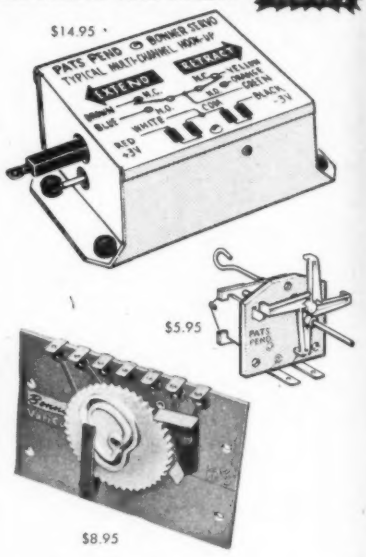
The 1929 S.6 carried small water coolers on the sides of the floats—since practically every inch of wing and fuselage surface were occupied by oil or water radiators—and still cooling was scarcely adequate. For the 1931 machines the whole float decking was made a radiator in the same manner as the wing covering. No wonder these planes were sometimes dubbed "flying radiators."

Propeller design created difficulties, the

(*Continued on page 50*)

Bonner R/C PRODUCTS

SEE THEM AT YOUR DEALER'S NOW!



$5.95

$8.95

Widely known for their perfection, performance, and reliability, BONNER products are the unanimous choice of active model fliers and contest champions.

There's a BONNER actuator tailored to every control in all of the popular types of R/C systems. "Check them out" at your local hobby shop today.

FREE R/C DATA, SEND STAMP — "IN R/C IT PAYS TO USE THE BEST"

BONNER SPECIALTIES 2900 Tildes Ave. Los Angeles 64, Calif.

New Catalog, over 300 pages, your BIGGEST SOURCE OF SUPPLY. Send for it on your letterhead. We sell to dealers only, 100% wholesale. FAST SERVICE ON ALL ORDERS.

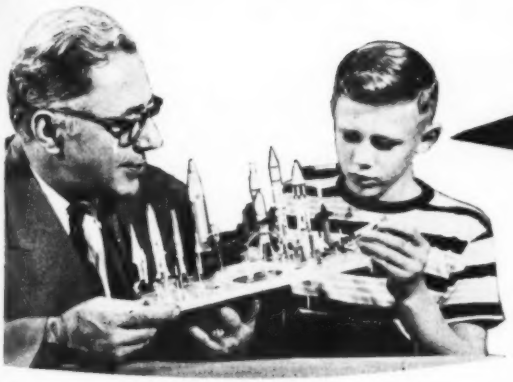
★ MODEL AIRPLANES
★ CRAFTS ★ TOYS
★ RAILROADS

HAW-KI HOBBY SUPPLY

Dept. N 1951 Rockingham Rd. Davenport, Iowa

DEALERS HOBBY SUPPLY

Dept. KC-N, 2940 Southwest Blvd., Kansas City 8, Mo.
P. O. Box 10061, 1950 S. Lauderdale, Memphis, Tenn.
P. O. Box 506-N, 510 E. Sixth St., Des Moines, Iowa
P. O. Box 10353-N, 2009 Farrington, Dallas, Texas



plastic or flying! more fun! more features! in monogram kits!

Willy Ley • Monogram advisor on missile and space travel models. Mr. Ley is a world famous rocket expert and author of the book, "Rockets, Missiles and Space Travel." Watch for new Ley-Designed Monogram models. Boy with Missile Arsenal is Bobby Vanderhyde, featured on the arsenal box.

Missiles, Jets, Historical Aircraft, Ships, Cars, Military Vehicles — Famous Speedee-Bilt Flying Models

Now Monogram gives you 67 of the world's finest model kits to choose from. Every kit is packed with fun and features you will enjoy. Now you can have the most wanted missiles, in realistic working models; the fabulous Missile Arsenal; famous jets and other aircraft, cars, ships, boats and six identical-scale U. S. Army vehicle models. Flying models too, the most popular flyers of all time, with plastic and balsa parts. Most kits are less than $1. See them at your favorite store.

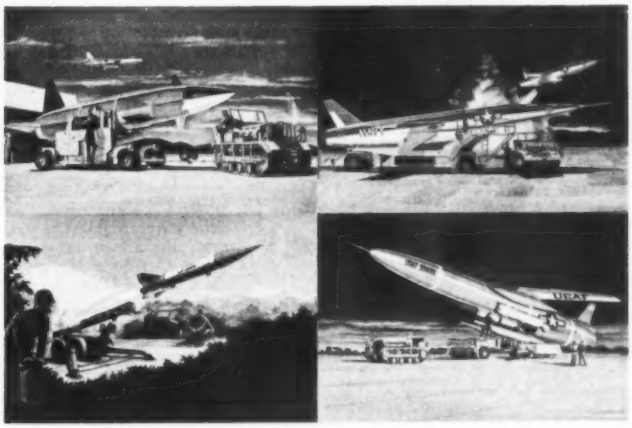
New All-Plastic Models with Monogram Exclusive Working Features

New models every month. Authentic in scale and looks. Amazing detail. Exclusive fascinating working features. Sculptured figures in every kit for extra realism. Some kits in four colors of plastic require no painting. Authentic decals. Best pictorial assembly instructions.

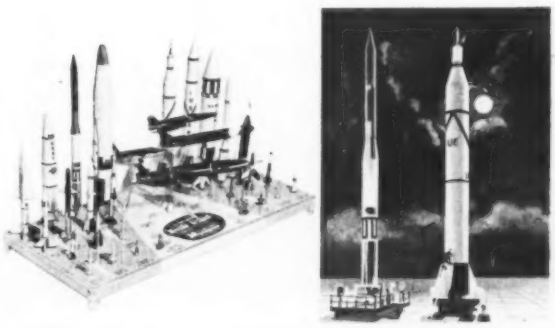
All-Time Most Popular Flying Models

Now 12 Speedee-Bilt Flying Models. World War I, II and others. Prefabricated balsa wings and fuselage. Plastic props, cowls, landing gear, canopies, engines, pilots, etc. Rubber powered. Prop models can be powered with small engines.

Famous Jets. Left: B-58 Hustler. Trigger drops weapons pod. Right: F-105 Thunderchief. Trigger ejects pilot in seat. Bomb bay opens and drops bomb. Each only 98¢.



New All-Plastic Missiles. Above: Air Force Rascal, launcher and tractor. Navy Regulus, launcher and tractor. Below: Army Little John, Jeep and launcher. Air Force Snark, launcher and tractor. All models have working features, sculptured figures and decals. Each only 98¢.



New U.S. Missile Arsenal. U.S. Earth Satellites. 31 authentic missile models, exhibition stand and 32-page book, "Know the Missiles." Only set of all U.S. missiles. Big kit, only $2.98. Earth Satellite Set. Vanguard and Jupiter C satellite vehicles. Both in one kit with launchers, pad and figures. Only 98¢.

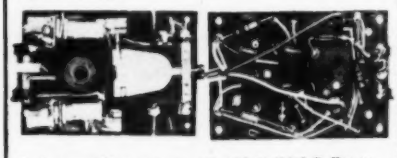
Famous Speedee-Bilt Flyers. Left: F9F Panther Jet. Right: P47N Thunderbolt. Balsa and plastic parts. 10 other kits. Each only $1.00.

Monogram

Hobby Kits FOR FAMILY FUN

QUALITY . . . VALUE – – ESSCO RC PRODUCTS UNSURPASSED – – ANYWHERE IN THE WORLD

FOR ULTIMATE PERFORMANCE AND DEPENDABILITY . . . THE EXPERTS SAY: "The Essco THT is without a doubt the best single channel receiver buy in the RC industry."



Is there anything more we can add to this? Suffice to say you too can also obtain absolute reliability of RC operation anywhere regardless of temperature variations etc. If there's another single channel rcvr that can equal the performance of the Essco THT, we would like to see it.

STD THT with MICRO GEM or Paladium non-pitting contact relay, housed in small attractive metal case **$21.95**

ANOTHER NEW DEVELOPMENT in receivers, asked for by many. **THE ESSCO THT/M.C.**, gives reliable motor control and proportional rudder, (fail safe if desired). Comes in same size case as STD THT, only 4 oz wt. A batt. drain under 60 ma. Complete ready to fly, deluxe unit **29.95**

SPECIAL MOTOR CONTROL ADAPTOR UNIT, for use with older model Essco THT & Lorenz rcvrs. Simple to install, complete unit with tube & relay **9.95**

THAT WORK HORSE of RC, the Deluxe ESSCO MACII always first in the field must soon, as ALL MACII XMTRs be retired due to the new FCC requirements. ESSCO has the answer on how to rework your present XMTRs at low cost. **THE BIG SWITCH IS ON**, you too as hundreds of RCers can "go legal" by the use of a Essco SUPER MOPA RF ASSEMBLY. Five watts input with 3.5 watt output. Ideal to replace present non-compliance power type oscillator units. Will perk up your TTPW WAG XMTR to obtain more reliability. Easily replaces your present RF unit, simple to install in your present XMTR case. Only 3X5X3 H **17.95**

MOPA RF UNIT for 50 mc operation, 5 watts input **21.95**

THE ESSCO HIPOWER ECON-MOPA XMTR. Full 5 watts input, better/65% eff. There's nothing else like it in the industry. Installed in ground (non-tip) case with H.D. 2 volt cell & completely filtered power supply. Complete with whip antenna, micro keyer cable, super mod. **44.95**

SPCIAL ESSCO TONE MOPA XMTR has FCC compliance audio tone modulator. Ideal to operate all single channel tone revrs as: C-G, DELTRON, MARCTONE, TRI-S etc. Has all features of CW model, unbelieveable low price **54.95**

REPLACEMENT OF DRY BATTERIES for your XMTR got you down and broke too? Shucks fellows it's time to install a dependable ESSCO 2 volt powered vibrapac. Variable output voltages for all types of XMTRs, completely filtered by 80 mfd of sealed type capacitors and 2 filter chokes. Sure you can buy cheaper units but you won't get the reliable long lasting performance of the **SUPER QUALITY** at **LOW COST** Essco power packs. std all purpose unit **11.95**

SPECIAL REGULATED OUTPUT VOLTAGE MODEL for the BRAMCO 8 and other multi-chan. XMTRs. "Clean" output voltage delivers superior performance over dry batteries **15.95**

DELUXE SPECIAL MODEL supplies ALL voltages for the TTPW WAG XMTR. Builtin charger for input cell & actuator cells such as NICADS, SAFT & SILVERCELS, etc., only **34.95**

THE ESSCO ALL PURPOSE battery charger, will recharge every rechargeable cell & batteries used in RC work. Complete ready for use, no other like it, only **7.95**

WILLARD 2 volt 40 amp cell. Your best buy in a rechargeable cell for powered XMTRs. Only 2¼x6½x4H **6.95**

FIRST GRADE RAYTHEON tubes, CK1054, $3.50

1AG4 ..... **3.25**

RCs wonder tube, **AMPEREX 6907, 1.95, CK521 2.25**

ALL ESSCO TUBES fully guaranteed, no rebrands/seconds.

ESSCO AUTHORIZED DISTRIBUTOR FOR ALL STD RC ITEMS

BONNER S.N., $5.95; Bonner Vari Comp. **$8.95**
Dual Vari Comp, 18.95; Bonner R.E. model **9.75**
Bonner Nylon Control Horn, .25; Tail Wheel Bkt. **.50**
BONNER RC hookup wire, .60; Essco wire ..... **.50**
BONNER SERVO, 14.95; Cobb Slim Line **8.95**
CITIZEN-SHIP Servo Actuators, all $14.95, Kit **11.95**
COBB HOBBY Stick Control Box for all comp. **12.95**
COBB HOBBY Selector 4, 8.95; E9 & E10 ..... **5.95**
BABCOCK Mark II, 7.95; Elect. Comp **8.95**
#887 Sequence Relay—#891 Motor Cont. **8.95**
DEBOLT MULTI SERVOS—The orig. for all RC work
2PN Single Channel rudder only **11.95**
2P2N Single Channel Auxiliary **11.95**
3P Single Channel Engine control **10.95**
3P3N Single Channel Engine control **11.95**
3P3NX Single Chan. Eng. cont, w. nylon gears **14.95**
2P2NX Single Chan. Auxiliary, nylon gears **14.95**
3PNX Single Chan. engine cont. nylon gears **14.95**
MCR 2 channel, rudder/ailerons. nylon gears ... **18.95**
MCE 2 channel, elevator/engine, nylon gears.. **18.95**
3PN 1 channel, multi control for boats **24.95**
DEBOLT Fuel tanks, 2 oz 1.50; 4 oz 1.60; 6 oz. **1.80**
DEBOLT Dural Landing Gears, RC-4-5-6, .49; 1.00; **1.25**
VECO Clunk Tanks, 4 oz 1.20; 6 oz **1.30**
BRAMCO Motor Throttle Control, for all engines **4.95**
ANNCO, two speed motor control **3.95**
ROTO-VALVE, Engine Controls, all mod. 2.00 to **4.95**
ROTO-BRAKE, 2¾, 3 & 3½" wheel brakes **0.95**
NEW EVEREADY NI-CAD Button Cells **1.95**
AA SIZE NI-CAD CELLS **2.50**
THE NEW OB Prprtnl. Actuator, 10.95; deluxe **14.95**
ROBOT JR, G/G dual actuator, 9.95; SYNCRO.. **19.95**
FLYBALL Actuator assembly, 2.45; Comp mtr **5.95**
HILLCREST Plastic Battery Cases, all types .45 & **.95**
ECTRON Battery cases, 4 pen .75; 4 med .95; multi **1.65**
ACME Battery Cases, all popular types in stock.
YUSHU MODEL Silk, your best buy, all colors **1.00**

THOSE RCers interested in obtaining more than simple rudder control are going into proportional control at relatively lower cost as compared to multi-channel. Simple reliable pulse control boxes presently available still leave something to be desired. We highly recommend the new Essco MINI-PULSER with stick control of rate and width controls. Essco's unique design gives full 270 degree rotation of the rate control that allows smooth and even control of complete range down to 2 cps. All components used are specially matched to give proper operation of the multi-vibrator. A & B battery drain is lower than units now available. Order at once for early delivery **26.95**

ESSCO RBM RELAYS

FEATURING . . .

1. **Small size**
2. **Sensitive & fast**
3. **Rugged construction**
4. **Paladium contacts**
5. **Low cost, only $3.75**

THE ESSCO "HORSE TRADER". Got yourself a highly "pooped" rcvr that flies your model just one direction, down or away? Well send it in boy with 15 skins and we will make a horse trade for a STD THT rcvr that will prove itself to be your best deal in RC. With a Esco THT installed in your model you simply forget all receiver troubles. Note this trade applies to a Wavemaster or Carpet rcvr with at least one good tube and relay. For other trades contact Essco in New York. See our Dec. & Jan. ads for a swell deal on a new RC channel crystal.

ESSCO - NEW YORK
58 WALKER STREET
NEW YORK 13, N. Y.
Telephone WA 5-8187

If not available at your local shop order direct from New York office for FAST-FRIENDLY-SERVICE . . . incl. postage & obtain FREE BONUS.

BUY ESSCO RC PRODUCTS
at your local dealer
FAST SERVICE! TOP DEALS!
All that's best in RC

aim being to give more take-off thrust as well as converting the extra power into thrust at an estimated 365-mph top speed. A smaller-diameter prop was favored, but on its first test the machine swung so badly in fast taxying that a take-off could not be attempted. Eventually a 1929 prop cut down to 9 ft. 1⅛ in. diameter was used for the Schneider fly-round and a strengthened 9 ft. 6 in. airscrew for the speed record attempts.

In May, 1931, the High Speed Flight moved to Calshot for advanced training. Team commander was S/L Orlebar and the members F/Lts. Hope, Long, Boothman, and Stainforth, Lt. Brinton (killed on the S.6A N247 during training), and F/O Snaith. Initial training was done on two S.5's, two Gloster 6's, and a Gloster 4, but later the two S.6A's (N247 and N248) were received, followed in July by the S.6B's, S1595 and S1596. The S.6A's initially used the 1929-type engines, but later N248, at least, was re-engined with the boosted 1931 motor.

A win in the contest depended not only on the technical superiority of the planes. The high standard of flying achieved by the High Speed Flight was reached after prolonged and scientific investigation of the flying problems posed by the triangular 1931 course. For example, it was found that the least time was lost at the markers by keeping the turns wide and steady and the loading limited to around 3g. To ease the effects of g loads on the pilots in turns, and prevent the consequent "blacking out", oxygen was tried as a stimulant, but with no success. Another suggested solution was the adoption of an abdominal belt inflated from an airstream intake—an early application of the g-suit idea.

Abroad, meanwhile, the French and Italian opposition were having their troubles, too. Pilots in both countries were killed. The Italians had a new Macchi said to use two 12-cylinder Fiat motors set end to end, the whole 24-cylinder unit driving .contra-props. This machine later became well-known as the speed-record Macchi MC-72, but it was too advanced to be ready in time for the 1931 race, and the Italians had to retire. French plans never came to much, so Great Britain was left as the sole competitor.

The last Schneider event, on 13th September 1931, was thus something of an anticlimax as a spectacle. Britain entered the two S.6B's and the remaining S.6A. Boothman drew the straw for the first attempt and took off in S1595 (race number 1). He made his first landing after the prescribed brief hop, did his two minutes or so taxying, and then roared away again for the actual fly-round. He flew an easy seven laps, nursing a heating engine on the water gauge and going well wide in the turns, to finish the course at an average 340.8 mph and win the Trophy outright for Britain. At four pm on the same afternoon Stainforth took up S1596, which had been standing by in case Boothman failed, to try for the world speed record. Of five runs made over the 3-kilometre course, the last four averaged out at a new record of 379.05 mph. The engine used was the R.25 giving 2340 hp at 3200 maximum revs.

Rolls had up their sleeve a special sprint engine, number R.27, which with some internal strengthening and using methanol, acetone, benzol, and T.E.L. gave 2530 hp at 3200 maximum revs—for a short period. At 6 pm on September 29th in failing light Stainforth took up S1595, now fitted with the sprint engine and with 100 gal. of fuel on board, for another crack at the record. On his first run he hit 415.2 mph, and the average of the last four of five runs worked out at 407.5 mph.

The S.6B serial S1595, outright winner of the Schneider Trophy, and world speed record holder, is featured in the tone four-view drawing. Wings, tailplane, struts, float tops, wire bracing, fuselage flash and parts of the engine top cowling are aluminium; the propeller is aluminium with black-painted backs to the blades and polished spinner; the rest of the machine is dark blue. The race number "1" is in white on the fuselage sides; the sighting line on the port wing is blue; serial numbers on the tail are black, outlined in white on the red and blue stripes.

This machine permanently is on show in the National Aeronautical Collection, Science Museum, London. Data is as follows (with that for the S.6A, where different, in brackets): Overall length 28 ft. 10 in. (28 ft. 8 in.); float track 7 ft. 6 in.; wing span 30 ft.; wing chord 5 ft. 8 in.; loaded weight 6070 lb. for race and 5751 lb. for second record attempt (heaviest weight at which N248 flew was 5717 lb.); wing area 145 sq. ft.; wing section RAF 27; typical wing loading 42 lb./sq. ft. (39.8 lb./sq. ft.).

• • •

Air Chief Marshal Sir John Boothman died in London in December 1957 aged 56. After the 1931 Schneider event he did experimental work at Martlesham Heath test field, went on to Staff duties, visited Washington during the war as advisor to the USAAF on RAF bombing techniques and held operational posts. After the war he had a spell as AOC-in-C, RAF Coastal Command, and a top appointment in NATO before retiring in 1956. Apart from many British and foreign decorations, he held the American DFC and was a Commander of the Legion of Merit (U.S.A.).

Stainforth, a Wing Commander and

crack nightfighter pilot—said to be the oldest fighter pilot in the Middle East—was killed in action there in 1942.

• • •

Mitchell, Supermarine's designer, and Rolls-Royce undoubtedly learned a lot from the Schneider Trophy machines, experience which stood them in good stead when they came to design the Spitfire and the Merlin. That experience alone was worth every penny of Lady Houston's £300,000 and the other money, private and public, which went into the S.6 series. (Acknowledgements to: Air Ministry; Vickers-Armstrongs; Science Museum; *The Aeroplane; Flight; Aeronautica* (and Mr. Jack Canary's fine articles on the Schneider events therein); Mr. Reed Kinert's *American Racing Planes and Historic Air Races.*)

The Danbury Story

(*Continued from page* 11)

ground up. First plane was a Jetco ROG. The boys purchased the kits and the War Memorial provided all necessary supplies, including a work board. Upon completion of the ROG's a contest was held in the building's gym. We had the use of the PA system and drew about 200 adult spectators. Prizes were awarded for the best total time for three flights and one overall prize for the best time turned in for the three classes. The News-Times covered the event with pictures and a column in the paper.

The second model was Goldberg's Ranger, picked for construction, size, flyability and price. These planes were completed and will be flown outdoors this spring. The third model was a choice of any Monogram Speedee-bilt kit, chosen because they are more difficult to build than the Ranger, and to be finished as non-flying scale models. A contest will be held and the models judged for construction and finish.

The next project will be Half A gas models. The first model will be a trainer and the second, a stunt ship. All the planes chosen for the program were selected with several things in mind. First, to provide a fairly complete, progressive building program. Second, good class control by the instructor because all would be building the same type plane at one time. Third, to keep down the cost of the kits, but with good results.

To wind up, we are scheduling a group of the older, experienced fliers to give both classes individual instruction on starting gas engines and in flying their models. After the outdoor training is completed, we will hold a regular meet, with such events as free-flight rubber, control-line stunt, scale, speed and combat included.

Being situated in a city park, the War Memorial building is ideal for classes. The city set aside an area for control-line flying, big enough to accommodate at least six circles.

Throughout a program like this contests should be held, at specified times. There is nothing like contests to keep class interest high and to bring out competitive spirt, especially in the younger group.

The War Memorial is establishing a permanent yearly trophy. Other prizes from local people include flights from the Danbury airport. The News-Times gives complete coverage on all these events.

As a bonus, we once arranged for a bus and took 60 boys and parents through New York City and out to Floyd Bennett Field in Brooklyn for a day at the Mirror Meet. The boys and the parents were very pleased, not only with the trip, but the results of the entire model building program.

SPACE JET 21

FOR .020 TO .049 GAS ENGINES

EXCITING NEW CONTROL LINE MODEL BY — Carl Goldberg

$1.69

21" WINGSPAN
DIE-CUT INTERLOCKING
ALL BALSA CONSTRUCTION

FIELD TESTED AND
PROVEN FOR CONTROL LINE

Dear Modeler:

Here's a really keen new model - the Space Jet 21 - exciting in its modern jet-like wings and tricycle landing gear that gives you beautiful, smooth take-offs and good landings. And it's the biggest wingspan for the money of any 1/2A all-balsa job ! Fast, of course, yet flies wonderfully smooth even in gusty conditions.

Wingspan 21", length 15", for .020 to .049 engines. Fully prefab, all die-cut interlocking balsa and plywood parts, formed landing gears, rubber wheels, large colorful decal, plastic canopy, etc., and clear step-by-step illustrated plans. . .$1.69.

ENJOY THE GREATEST THRILL IN MODELING — BUILDING A PLANE THAT REALLY FLIES.

RANGER 30—Die-cut balsa, 30" span, for .020-.049 engine. $1.95

½ A BLAZER—Die-cut balsa, tissue. 40" span, for .049 engine. $2.50

SWORDSMAN 18 Die-cut balsa, 18" span. for .020-.049 engine. $1.49.

RANGER 28 — My "pre-fab plus paper". 28" span, 2 colors $1.00

SHOESTRING RACER—18" span. All die-cut balsa. Complete $1.00

CESSNA 180—The champion of business liners. 21" span. $1.00

SPIRIT OF ST. LOUIS—A miniature duplicate. 21" wingspan. $1.00

RANGER 21 — All die-cut balsa parts. 21" span beauty. $1.00

yours for good flying,

Carl Goldberg

P.S. If no dealer near you, send me cost of plane plus 25¢ each for postage and packaging. Or send cost of any three and I'll pay the postage.

CG

CARL GOLDBERG MODELS

9847 S. CLAREMONT, CHICAGO 43, ILL.

Solid Electra

(*Continued from page* 21)

but I find the white glue, such as Borden's Elmer glue best for hard woods. Cement horizontal stabilizer in cut-out J (see fuselage side template). Cut out fill block from piece ½" wide, 1" long and ¼" thick—fit in over horizontal stab.

Carve vertical stabilizer from 3/32" thick stock, using templates G-G and H-H. Cement in place along top center line of fuselage. Carve fill block to form the fairing between vertical and horizontal stabilizers. Finish fairing with plastic wood or surfacing putty.

The wing is made in two pieces like the stabilizer. Be sure to cut correct angle at center line E-E. Use wing templates E-E and F-F to shape wing along center line of leading edge and trailing edge.

Cement the two wing sections together using a 7/16" block at each tip to give correct dihedral. Wing can be cemented to fuselage (E fuselage side template) at this time if so desired, but I prefer to install engines first.

Engine nacelles are cut out in the same manner as the fuselage. Trace side and top templates on backs of wood and cut out with jig saw or coping saw.

There are two inboard and two outboard engines, one left and one right in each case. Note that slot for wing must be cut at slight angle to fit dihedral of wing.

Lefthand engines are shown in templates. Righthand slots must be cut with angle in opposite side. Lay out cross sections L, M, N, etc. Note that cross sections are the same on all four engines up through section N. From there they change.

Lay out center lines for engines on wings. Cement in place and, when dry, add sur-

NOW!

MIN-X

INTRODUCES A NEW STANDARD TO THE RADIO CONTROL FIELD

THE POPULAR MIN-X RECEIVER AND TRANSMITTER COMBINATION GUARANTEES HOURS OF CAREFREE FLYING. **TRANSMITTER FEATURES:** RELIABLE MOPA CIRCUIT • 100% MODULATED HIGHEST OUTPUT • HIGHEST QUALITY COMPONENTS • GOLD ANODIZED CASE WITH 2 COLOR NAME PLATE • $38.50 **RECEIVER FEATURES:** NEW ALL TRANSISTOR CIRCUITRY • WEIGHS ONLY 2.5 OZ. WITH CASE AND PLUG • SIZE 1" x 2 1/16" x 2 3/8" • FLY ALL SEASON ON 25c WORTH OF RECEIVER BATTERIES SIMPLIFIED TUNING PROCEDURE • 30 DAY WARRANTY • THE ALL TRANSISTOR RECEIVER WITH THE **RELIABILITY** OF TUBE TYPE RECEIVERS • ONLY $39.95

FLIGHT TESTED FOR MONTHS ACROSS THE NATION, UNDER ALL TEMPERATURE CONDITIONS

MIN-X RADIO

6555 OAKLAND • DEPT. M-3 • DETROIT 2, MICH

facing putty fillets—which also fills any gaps. Now cement wing in place if you have not done so already. Add small scraps of wood in fuselage where leading edge and trailing edge of wing join fuselage and carve to make smooth joint. Add fairing of plastic wood where upper surface of wing joins fuselage.

Give entire model a good sanding with 2/0 sandpaper. If you get a smooth job to start with, it will be much easier to obtain that superfine finish. Lacquer or dope gives the desired perfection, so give the model two or three coats of lacquer sanding sealer. Sand with fine sandpaper. Next, use some lacquer primer. I use gray primer. Best results are obtained by spraying, but a good job can be done by brushing.

After first coat of primer, use surfacing putty to fill any nicks, joint cracks, or deep grain. When dry, sand smooth, with 2/0 sandpaper and give second coat of primer. When dry, sand with 320 wet or dry sandpaper and sand dry.

Next comes a coat of aluminum dope or, if you prefer to mix your own, use aluminum powder and clear dope or clear lacquer. When well dry, sand with 400 wet sandpaper.

Hold up the model to see if light is reflected off its surfaces. This will enable you to see any spots that are not smooth.

At this point scribe in all control surfaces and doors with sharp pointed scribe. Now you are ready for final coat of aluminum. Before the last color coat is entirely dry, give it a coat of clear dope or lacquer. Aluminum itself will not take a high polish. Therefore it is this coat of clear that takes the high polish.

If you decide to trim the model like the Electra in the photo, lay out the striping with masking tape. Leave exposed sections of each color desired, one color at a time, blanking off the rest of model with paper.

The stripes on fuselage and wings behind star on fuselage are blue. Stars on fuselage and vertical stab and Lockheed Electra are red. Wings on vertical stab are white. Nose and anti-glare are olive-green. Paint windows a very pale light sky blue. Let model sit a day before giving it a rub-down with fine rubbing compound. Finish with a good furniture wax.

While waiting for each coat of paint to dry, you can make the props. They are cut from wood or brass. Make spinners of wood. Props are painted as follows: Aluminum spinner, black blades with yellow tips.

Carve your favorite type of stand to mount the model on and I'm sure you will have an Electra you will be proud to show your friends.

The Los Angeles Story

(*Continued from page* 10)

A Planning Committee was appointed. A partial solution was quickly found. The launching area was relocated according to wind direction, so that models would drift over the area assigned for model aircraft activity instead of away from it. For the farmer who understood there would be some trampling of crops, the City made an adjustment in his lease. Once again, a temporary free flight site was available. In fact, radio control had grown so that two sites were so set up so that the two would not interfere with each other.

With the free flighters temporarily happy, the Planning Committee and the Department worked up a layout for a flying area which would accommodate control line as well. Although other recreational activities planned for the Sepulveda basin area resulted in yet another relocation of the flying site, it appeared this location would be final. But whereas the golf course had been built by funds from the golfers who voluntarily contributed an additional amount to their greens fee every time they played on a municipal course, no arrangement existed by which the modelers could pay for improvements to the model flying site. The Department of Recreation and Parks had no appropriated funds, but from general maintenance funds laid down decomposed granite (a form of gravel) over the areas for parking lots, as free flight, radio control, and U control circles.

While all of this was going on, a big bond for recreational purposes was defeated. Since it now appeared that it would be some time before such funds would be forthcoming, the Los Angeles Model Hobby Association worked out an arrangement with the Department whereby, if the modelers were able to collect the necessary funds, they could make certain capital improvements to the flying site. The objective of the first campaign was sufficient funds to install an asphalt runway 200' long by 75' wide for radio control. Subsequent funds would be used to lay down asphalt take-off areas for free flight. The campaign for funds was successful!

In August 1955, ceremonies were held at the Sepulveda basin flying site, the modelers deeded the runway to the City, and the Los Angeles Model Airport was in business. From left-over dollars and additional funds raised, the second phase in the development of the Los Angeles Model Airport took place in 1956. Four 40' blacktop circles were laid down for free flight and one quarter-circle track suitable for control line models on 60' lines.

Today the Los Angeles Model Airport consists of a parking area for 200 cars, a 200' x 75' asphalt runway which is surrounded by an additional 200 feet of graded decomposed granite, four 40' asphalt circles for free flight, and one asphalt quarter circle for control line flying. Future plans call for enlarging the radio control runway into a 200' asphalt circle so that take-offs can be made in any direction, interconnecting runways between the free flight circles, the installation of eight more free flight take-off circles, and finally, completion of the present control line circle and the installation of two more. Someday, a food service and a picnic area for the families of modelers, may be set up.

All was not yet serene in Los Angeles. For one thing, the State Highway Commission decided to run the Golden State Freeway right through the control line area at Griffith Park. The Model Hobby Association and Department of Recreation and Parks are hard at work on its relocation.

And like Chicago, Evansville and Nassau County, N.Y. the Los Angeles Department of Traffic resorted to radio control of traffic lights. In their request to FCC, they noted that 27.255 megacycles was a frequency available for this purpose, and they understood that utilization of this frequency was "subject to interference" restriction, devised a multi-tone control system which was virtually interference proof. At the same time, whenever it operated, it completely blocked all other operation on that frequency. It sent models spinning into the ground, cut off voice communications between mobile units and their home stations, and garage doors designed to operate on that frequency began to open and close with the traffic lights. To say the least, radio operation in the Los Angeles area on 27.255 megacycles became hazardous, if not impossible. Protests began coming in.

Mr. Lloyd Braff, Manager of the Department of Traffic, assigned his Chief Engineer, Mr. Dean Terry, to look into the problem. The fact that approximately a

(*Continued on page* 54)

Guillow's

Explorer

ALL PURPOSE
RADIO-CONTROL TRAINER

KIT GM-18

RUDDER ONLY — INTERMEDIATE MULTI-CHANNEL

Completely pre-fabricated

WHEELS, LIQUIDS, RECEIVER AND MOTOR UNIT NOT INCLUDED

$14.95

Wing span 56 in.
Wing area 560 sq. in.
Engine .15 to .25 disp.

Ideal for Beginner or Expert

When first demonstrated by designer Lou Andrews, spectators and modelers alike chorused "what a sweet flying ship". The flight characteristics of the Explorer will satisfy even the most critical R C flyer. Designed with an N.A.C.A. No. 2415 airfoil, this plane is fully acrobatic in the air (using proper equipment) and performs the most graceful turns and rolls imaginable. R.O.G. and landing qualities are excellent and in the hands of a competent flyer, the Explorer is capable of all A.M.A. precision and acrobatic maneuvers. From start to finish, the Explorer is a practical and functional airplane that incorporates all the best features of modern R C design.

Brand new!
designed by
LOU ANDREWS
famous gas model champion

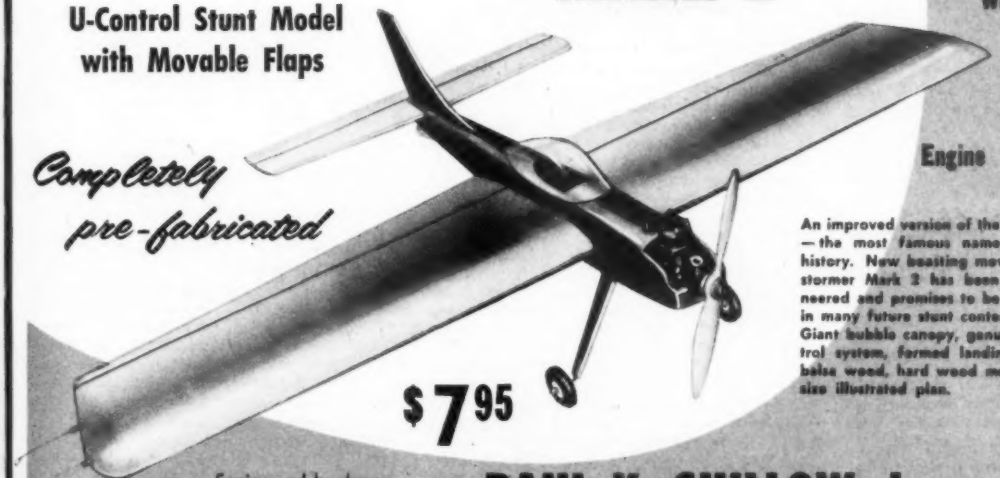
KIT GM-2A

Guillow's

BARNSTORMER MARK 2

U-Control Stunt Model with Movable Flaps

Completely pre-fabricated



$7.95

Engine and hardware not included

Wing span 47in.
Wing area 470 sq. in.
Engine .19 to .36 disp.

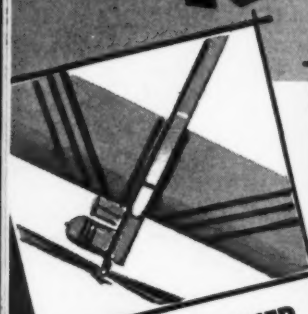
An improved version of the Guillow Barnstormer — the most famous name in U-Control Stunt history. Now boasting movable flaps, the Barnstormer Mark 2 has been thoroughly re-engineered and promises to be a potent competitor in many future stunt contests. Special features: Giant bubble canopy, genuine decal, Veco control system, formed landing gear, top quality balsa wood, hard wood motor mounts and full size illustrated plan.

PAUL K. GUILLOW, Inc. Wakefield, Mass.

If not available at your Hobby Dealer send direct to factory adding 25c packing and postage in U.S.A., 40c outside U.S.A.

ON THE WAY!

4 Exciting New Model Kits!



FLIGHT TRAINER
Kit S-16 Wing Span 24"
For .09-.015 engines

All wood model kit, rugged enough to take plenty of punishment! Ideal for a beginner to learn to fly control line model. Carved body and wings, etc. Beginner assembly time 1-2 hours. Extremely stable. Very inexpensive.

RUFFY
Kit S-15 Wing Span 50"
Area 545 sq. in.
For .35 engines

Top full-range contest-type stunt model. Has won major contests all over the country. Designed by Lew MacFarland, its construction is simple, light, rugged. Full flaps.

Lockheed
LIGHTNING P-38
Kit S-17 Wing Span 36"
For .09-.015 engines

A new BIG model of this popular planel Spectacular in flight, magnificent performance in the air. Carved profile bodies, leading and trailing gauges, etc. All other parts die-cut for fully-fabricated, easy-to-build model.

PIPER CUB J-3
Kit FS-6 Wing Span 54"
For .09-.35 engines

Especially designed for radio control operation. Also performs beautifully as free flight or control line model. Fully prefabbed-balsa and plywood shaped and/or die-cut parts, metal cowling, authentic insignia. Easily assembled . . . complete flight instructions included.

The World's Most Experienced Airline invites you to compete in . . .

PAA-LOAD EVENTS
for 1959

Move into the Jet Age with Pan American by competing in PAA-Load Jet.

New this year: PAA-Load Gas and Clipper Cargo with the .020 "Pee Wee" engine.

PAA-Load Contests are held throughout the U. S. and 'Round the World.

For 1959 rules and regulations, write to: Educational Director, Pan American World Airways, 28-19 Bridge Plaza North, Long Island City 1, N. Y.

PAN AM

quarter of a million dollars' worth of privately owned radio equipment and associated items was being immobilized, did not provide good public relations. However, the Department of Traffic was unaware of the magnitude of the radio control activity. Once, Mr. Terry asked the obvious question "How do you people keep from interfering with each other?" When informed that our limited range made it possible for people to fly simultaneously as long as they were more than three miles apart, and that, at the Los Angeles Model Airport, the modelers cooperated and in effect scheduled their flights, Mr. Terry mused "Hmm, then we with our 250 watts and our unscheduled transmissions are the monkey wrench in the works."

Due to the newness of the system, unscheduled tests must be run during the working hours. After 5:00 P.M. during the week, the broadcasts are regularly scheduled, and on weekends the transmitter is turned off. This is a temporary measure. They recognized, however, that as the demand for the services of their transmitter inevitably grows, so will the frequency of their transmission. The only solution, therefore, being segregation of frequencies, the City of Los Angeles, through their Bureau of Communications, has requested the FCC to explore the possibility of assigning to the City of Los Angeles a different frequency for the traffic control transmitter, in order that the City Government and the citizens may pursue their radio activities in harmony.

Problems will arise as both Los Angeles and the model hobby activities grow. The pattern of cooperation which has developed in the past few years, however, assures that this problem will continue to be solved and that Los Angeles truly will continue to be the modeler's heaven.

Foreign Notes

(*Continued from page 2*)

By reason of this win (although Finland actually won on a team basis) Rumania was host country at the 1958 Championships, the last event on the international calender. Only four countries (Russia, Poland, Rumania and Yugoslavia) competed this time and the Russians had a clear win by topping both the individual and team results.

Winner Verbitki clocked a perfect five-flight total of 900 seconds, the only contestant to do so. He had a fairly conventional pylon ship with a diamond section fuselage and powered by the new Russian MK-12B motor. The MK-12B is a copy of the well-known German Webra Mach-1 Diesel .15. On Verbitki's model it was mounted with the cylinder inclined 45 degrees—i.e. halfway between upright and sidewinder—and had a special radical conversion mount allowing easy thrust-line adjustment.

Second place winner was Hints of Rumania and Babic, Yugoslavia (winner of the 1957 World A2 Glider Championship) was third. Lavish prizes are becoming a tradition with this event and included a refrigerator and a radio receiver. Last year, in Russia, the winner got a motor-cycle.

HUNGARY

Many years ago, there appeared in a British magazine, a lengthy and masterly piece of humor about a luckless Russian modeler, "Little Ivan", whose fate was to be shot down at dawn for using (if we remember rightly) an English model design and American rubber. In truth, however, there appears to be little or no discrimination in the East against the use of models, etc., of Western origin.

from **Sterling** models

Belfield Ave. & Wister St.
Phila. 44, Pa.

M-9
Fairchild PT-19
Span 21"
$1.95

M-8
F-51 Mustang
Span 21"
$1.95

3 NEW PLANE KITS with Sensational "AUTO-MAGIC" PILOT!

*.020 engines only recommended for control line or "Auto-Magic" Pilot.

M-7
*Douglas C-47
Span 21"
$1.95

Even a beginner can assemble and fly these beauties! HARD-TO-MAKE PARTS SUCH AS COWLS, ETC. IN PLASTIC! Cleanly die-cut balsa and plywood parts . . . formed landing gear, wheels, silk-span, decals, etc. Fly 'em FREE FLIGHT . . . CONTROL LINE . . . or "AUTO-MAGIC" PILOT! For .020 or .049 engines.

WHAT IS "AUTO-MAGIC" PILOT? Sensational device lets you fly your model CAPTIVE — indoors or outdoors! Needs NO PILOT . . . eliminates hazards of free flight!

Also introducing—LOCKHEED P-38 Lightning

S-14
Span 24"
$2.25

Spectacular profile stunt model, rarely seen in kit form. Unusually complete, with finished profile bodies, die-cut balsa and plywood parts, formed landing gears, wheels, decals, etc. For .049 engines.

STERLING MODELS
Belfield Ave. and Wister St., Phila. 44, Penna.

Please send copy of new Sterling Catalog. Enclosed is 10c to cover handling & mailing.

Name_____

Address_____

City_____ Zone____ State_____

WHEN IT'S MADE BY STERLING IT'S UNCONDITIONALLY GUARANTEED IN WRITING!

In Hungary, for example, many top modelers are using American, British, German and Italian engines, such as Fox, McCoy, Oliver, Webra and Super-Tigre. It was slightly surprising, though to see Egervary's stunter at the '58 FAI C/L Internationals, carrying free publicity for the Testor Corporation blazoned across one wing in the form of a massive "McCoy 35" in the authentic lettering of the McCoy trademark. Egarvary placed 6th. Other Hungarian contestants placed 3rd and 11th using Fox 35's.

PHILIPPINES

Aircraft modeling in the Philippines is a little slow in its progress at present but is gradually attracting more and more people. Scheduled to be held about the time this issue goes to Press, the Philippines will have a CAA sponsored meet that will feature combat, stunt, flying-scale and endurance. Major prizes will include a four-year scholarship given by the Feati Institute of Technology, trophies, cash prizes and ribbons. Other prizes will consist of engines, kits, etc.

The meet, to be held at Nicholas Air Force Base, is expected to arouse considerable attention. It is thought that U.S. kit models, particularly Sterling's Ringmaster, Yak-9 and profile Mustangs, will be much in evidence. Balsa is reported to be scarce in Manila and most local enthusiasts make their models from American kits. Torpedo and Enya engines are the favorite motors.

FRANCE

Following the French Federal Championships Finals at Chartres winners Michel Perineau, Andre Goetz and Gerard Demarquay became French Champions in respectively the Rubber, Power and Glider classes. An interesting point is that, in all three classes, the aggregate scores were higher than those of the previous year.

In PAA/Load, Jacques Morisset, Pierre Dupin and Henri Jumaux were the winners in Pan-Am's Third PAA/Load contest at Villacoublay. Morisset, well-known in European modeling circles for many years, both as contestant and reporter, took the Jet Load event using a Jetex Jetmaster-150 motor. The American Class (for 049's and to a maximum of 1 c. c. or .061 cu. in.) was won by Dupin with a McCoy 049 powered Blanchard Payee. Bearded Jumaux, winner of the International Class, had a 76 in. span original called Big Ben, powered by a Micron Meteore .15 cu. in. Diesel.

IN BRIEF . . .

Hungary . . . Next in size to Britain's D-C Bambi Diesel (still the smallest model motor ever produced) is Hungary's new Alag 0.25 c.c. (.015 cu. in.) Diesel. It is now being exported to a number of countries outside the East European bloc, including Switzerland and Australia.

Germany . . . Ambitious single-channel scale RC ship is a 6-ft. Avro Arrow delta built by Gunther Killner of Bremen. Impresssive looking, with its large area, model weighs 7½ lbs. and is powered by a Torp .35.

Britain . . . Speaking of deltas, prompts a mention of Phil Smith's latest, the free-flight Delaceptor. In this new Veron kit model, Smith, Britain's leading designer of ducted fan models, has adopted a prophetic-looking ram-jet interceptor layout which allows a much more efficiently proportioned duct. The model spans 40 in., weighs 14 ozs. and is intended for motors of up to .099 cu. in. It is claimed to outperform all previous types of ducted fan models.

A new British RC Glider (hand-launched) record, set up on October 19, has just been

New!
x-acto®
SAFETY-GUARD KNIVES*
**Pat. Pending*

- Guard operates on chuck principle with positive locking at any point...from complete recess of blade to full extension.
- Accommodate regular X-acto surgically-sharp, instantly interchangeable blades.
- Sliding metal guard assures absolute safety in carrying, handling and storage.

Open Closed

No. 1G (Illustrated) $1.20
No. 2G (Not Shown) $1.50
(Heavy Duty Model)

Send 25¢ for latest "Buying Guide."

x-acto®

X-ACTO, INC.
48-53 Van Dam Street
Long Island City 1, N. Y.

NEW! TERRIFIC!
Toshi Matsuda's
ZERO
½A FREE-FLIGHTER THAT
DOES IT WHEN OTHERS FLOP!

$2.95

The hottest thing in 1/2A! It climbs higher, faster... stays up longer. Designed to use ALL the power of the best .049s! For an unsurpassed thrill, hang your engine on a ZERO. See for yourself the super performance that has already won a string of Firsts! At a recent contest the "anyone can get 5 minutes" models were doing 3 to 3½ minutes. Tosh dethermalized his ZERO three times straight at over SEVEN MINUTES. Does that tell the story?

WARNING! Watch the engine-run— or you may put your ZERO in orbit!

FREE FLIGHT DELTA

for .049 Just $2.50

It doesn't take a hot shot to build and fly this Delta, although a lot of hot shots are flying them in order to be putting something different in the air. If you too are curious about a Delta, here's dependable performance and true Delta characteristics in a job that has been thoroughly proven before being announced.

THE ALL-TIME FAVORITE
GOES RADIO CONTROL

MISS TINY $5.95

Exceptional wind penetration and stability!

A good flying R/C Model doesn't have to be an ugly box! Miss Tiny is world-famous for her beauty and flying qualities. Uses hot .049 to .099 engines, depending on weight of R/C gear. Wing Span 46". Finished cowl and die-cut parts.

Ask your Dealer, or send M.O. and we'll ship prepaid. (Mr. Dealer: If your jobber won't supply you, send M.O. for prepaid shipment, regular discounts.)

MODELCRAFT
8945 SOUTH WESTERN AVENUE
LOS ANGELES 47, CALIFORNIA

ratified. Established by the Copland-Warwick-Young team of Northern Heights club, model soared for a total of 3:50.35.

Finland . . . Reino Hyvarinen, noted free-flight modeler, has become Finland's "Modeler of the Year" for 1958-59. This recognition is made annually by the FAA (Finnish Aeronautical Association). It was made to Hyvarinen for his winning performances in A2 and Wakefield at home and at the Oslo, Norway, Nordic International meet.

Ecuador . . . Known to modelers as the main source of the world's most important material for model airplanes, Ecuador is now building models too. From Jose Jiminez Madrid we learn of model contests at Guayaquil organized by Senor Ernesto Estrade Ycaza. Scale u-control seems to be the main interest at the moment.

Let A Servo Do It

(*Continued from page* 25)

length and diameter and the insulated hookup wire size, a combination to fit almost every situation may be found. The double-pole, double-throw switch you see in figures one and two is exceptionally convenient for reversing direction of operation of the servos. The normally off (spring loaded) position is very nice for throttles and flaps since they will remain in any desired position by merely releasing the switch toggle. With the application of these ideas and a little imagination, one can find many possibilities for realistically operating models. Models with two or even more servo actuators are possible.

Who knows what the ultimate might be?

FAI Report

(*Continued from page* 20)

luck, and weather conditions. Most European countries have a longer series of flights to determine their top men. This is much easier in a small country where transportation problems are not severe. The huge size of this country makes it impossible to have one contest where all areas can compete together. (We do attend the Nats?—Editor). Selection of our teams is handled by the International Competition Committee appointed by the AMA President. The present committee includes: Larry Conover, Chairman; and members, Joe Bilgri, Herb Kothe, and Gerry Ritz.

The ICC has been reviewing suggestions for changing our elimination set-up. One important consideration is to keep travel distance at a minimum, and to compensate for weather. Easiest improvement is to have more semi-final flights. With, say, ten semi-final flights it would be necessary to spread the flights over a two-day period, which is good in that different weather conditions might exist over the period of the ten flights. It would be sensible to hold one semi-final for one event on a separate weekend, making a total of three semi-finals over three weekends, if a person qualified in all three events. Ten flights means more consistency and a better team.

The problem of team selections is made difficult by the change to three-man teams. With a centralized semi-final, as in England, this is no problem since the top three men will form the team. Here, the problem is different. We seem to be the only country with such problems. But we have the size of the good old USA to contend with. We have been successful in dividing the country up into four areas, each area holding a semi-final contest to select one team member. Even this means that some people have to travel nearly 1000 miles to compete. The country is less adaptable to a division into three areas. A mechanical division suggests three cities: Salt Lake City, Utah; Topeka, Kansas; and Columbus, Ohio. Everyone would have to travel more under this arrangement. The easy solution is the old four areas, picking four team members, the man with the lowest total time being dropped; or used as an alternate if one of the other members couldn't compete in person.

• • •

The selection of teams for Radio and Control-Line is even more difficult. President Good is in the process of appointing his Radio and Control-Line members of the ICC. Although the Championships will not be staged until 1960, it is possible team selections could start this summer and fall. The following is a brief run-down on rules and specs on two of the CL events. (Speed rules can be found in the AMA rule book.) Space does not permit including the Radio rules in this issue.

WORLD CHAMPIONSHIP ACROBATIC STUNT RULES

Maximum projected surface area—wing plus stab—2325 sq. in.; maximum piston displacement—.61 cu. in.; maximum total weight—11.02 lbs.; minimum loading of surface area—3.93 ozs. per sq. ft.; maximum loading of surface area—16.25 ozs. per sq. ft.; line length—49.2 ft. to 65.6 ft.

Three official flights allowed, with two attempts per official; two models may be used to complete official flights; for placing, the points of the two best officials are added.

Maneuvers: Each maneuver is judged from one to ten, and for points, this judged number is multiplied by the coefficient K indicated below.

1. Starting (within 1 min.), K2.
2. Take-off, K2.
3. Horizontal flight (2 laps), K3.
4. Inverted flight (2 laps), K4.
5. Reverse wingover, K8.
6. Inside loops (5), K1 (first loop), K2 (2nd and 3rd loop), K3 (4th loop), K4 (5th loop).
7. Outside loops (5), K1 (first loop), K2 (2nd loop), K3 (3rd loop), K3 (4th loop), K4 (5th loop).
8. Triangular loops (2) K6 (1st loop), K8 (2nd loop).
9. Horizontal flights (3) K3 (first eight), K4 (2nd eight), K5 (3rd eight).
10. Vertical eights (3) K4 (first eight), K6 (2nd eight), K8 (3rd eight).
11. Overhead eights (3) K4 (first eight), K6 (2nd eight), K8 (3rd eight).
12. Four-Leaf Clover, K10.
13. Landing, K6.

TOTAL POINTS: 2200

• • •

WORLD CHAMPIONSHIP TEAM RACING RULES

Maximum total weight—24.64 oz.; maximum piston displacement—.1525 cu. in.; minimum projected surface area (wing plus stab—186 sq. in.; minimum dimensions of the fuselage where the pilot is located: height—3.94 in., width—1.97 in.; maximum fuel capacity—.60 cu. in.; line length—48.2 ft.; minimum wire diameter—.010 for 2-line systems, .014 for single line. (Note: Standard Mono-Line handle is not permitted; new regulation does not allow any extension of the handle beyond the hand.); length of races—100 laps for both Heats and Finals; number of teams per race—3.

Number of models allowed—2; number of heats each team may participate in—2; qualification for the final race—the three teams completing a single heat race in the shortest time; 1st to 3rd Place—determined by finish order in the final race; 4th and lower places—determined for each team by considering the best single heat race; whipping—permitted.

(*Continued on page* 58)

"Berkeley BILL" USES AMBROID!

"When I started making models 30 years ago" — says Bill Effinger, President of Berkeley Models — "I used Ambroid automatically. Every other modeler did so too! As other cements came on the market, I tried them all, but always came back to Ambroid. Berkeley kits represent ruggedness, good design and flying ability. To take best advantage of these qualities, Ambroid cement and Berkeley kits fit together"!

Backing up Bill's statement, Berkeley's new 'Chucker' glider kit even includes a special tube of Regular Ambroid cement. A new booklet by Ambroid entitled 'How to use Cement', is a 'free-extra' given with all Berkeley kits nowadays.

"REGULAR" AMBROID
1-3/4 Oz. Tube . 30¢
4 Ounce Tube . . 60¢
1 Pint Can . . $1.75

AMBROID SOLVENT
1 Pint Can . . $1.35

"EXTRA-FAST" AMBROID (Model Airplane Cement)
20 cc. Tube . . . . . 15¢

"SYNTHE-WOOD" (Ideal as a filler & for fairings)
4 Ounce Can . . . . 40¢

Use "Regular" Ambroid cement for maximum strength model construction — "Extra-Fast" Ambroid (actual size 20 cc. 15¢ tube illustrated lower right) for small lightweight models and temporary flying field repairs

How to use
Cement
There's a right and a wrong way to use cement. And it's important you choose the type best suited to your model. . . Ambroid reveals secrets here!

ITS EXPENSIVE TO BUY CHEAP CEMENT

A model plane is no stronger than the cement that binds the pieces together; and ever since 1910, the leading model plane builders and fliers have sworn by Ambroid. Unequalled for strength, flexibility and hot fuel-proof qualities, Ambroid cement joints on models built as long as 30 years ago, are still as sturdy as the day they were made.

SLOW DRYING CEMENT PENETRATES BETTER

Slower drying cements give by far the strongest joints, since all cements dry by solvent evaporation. As the solvent evaporates, the cement penetrates the wood pores, forming the bond which will hold the pieces together. Once the solvent has stopped evaporating, wood pore penetration and bonding also come to a halt. On a small model, the weaker bond of fast drying cement may get by — but for larger and heavier models which are subjected to more severe stresses and strains, a stronger and more permanent bond is essential. In other words, you always sacrifice strength when you settle for the convenience of fast construction.

TECHNICAL FACTS ABOUT AMBROID

Joints made with Ambroid cement reach an ultimate strength quickly — by comparison with other adhesives. In model use, 25% of ultimate strength is generally reached in two hours and total ultimate strength in twenty-four hours (at room temperature). When used in making wood joints, tensile strength of from 400 to 500 pounds per square inch resistance to shear loads is developed. The joints are permanent unless subjected to temperatures above 180 degrees F. for considerable periods of time. The film is water, gasoline, fuel and oil resistant — and the cement dries evenly with no distortion of small parts. Ambroid also has high flexural qualities, good impact resistance and contains no toxic materials — such as benzol, methanol or chlorinated solvents.

(brief extracts from new "How to use Cement" booklet)

In Every Field There's A Leader — In Cement It's AMBROID

AMBROID CO. • BOX 30 • WEYMOUTH 88 • MASSACHUSETTS

New!
Just off the Press

FOUR NEW EDITIONS FOR YOUR AIR AGE TECHNICAL LIBRARY

Completely new, another set of four manuals—covers the "great" fighters of World War 2. Be up to date on the very popular warplane designs of the second world war. Plans, pictures, and data a collector's item.

P-51 MUSTANG

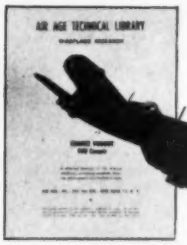
Fastest of all fighters of the period, this magnificent plane fought the world over

P-38 LIGHTNING

Famed twin-tailed, long-range, two-engine fighter was most unique

P-47 THUNDERBOLT

Powerful slugger, the P-47 earned name "the Jug." Rugged, powerful.



F4U CORSAIR

What the P-47 was to the Army Air Force, the Corsair was to the Navy and Marines.

AIR AGE INC. 551 Fifth Ave., New York 17, N. Y.

Herewith $..... for the following booklets in your TECH MANUAL Series at 50¢ each, or enclosed $2.00 for all four ☐

.....copies P-51 Mustang
.....copies P-47 Thunderbolt
.....copies P-38 Lightning
.....copies F-4U Corsair

Name.....

Address.....

City.....State.....

It is impossible to have two sets of judges agree on total points in any flight, as has been proven at the U.S. Nats. Thus, any comparison of points for a semi-final virtually rules out an equitable selection. What is the best way to select our teams for radio and stunt categories?

Many differences between FAI and AMA rules exist. The use of two models to complete the official flights is one. The point totals are high in relation to AMA procedures. AMA stunt rules give a maximum of 660 points, the International rules allow 2200. The usual bonus points for appearance are eliminated. Restrictions on wing areas and surface loadings do not exist in AMA rules.

This up-to-date report on the World Championship situation has touched on many problems. Only the active support of the modelers in all phases of designing, flying, and administrating the International program will help insure the future success of this country in World Championship flying.

Ryan PT-22

(*Continued from page* 13)

equipment as witnessed at the carrier event circles had me reaching for my triangles and T-square.

The Fox .25-powered Ryan has been built to a scale of 1¼ inches equals 1 foot, having a 36⅜ inch wingspan and a weight of 31 ounces. The ship balances at about ¾ inch aft of bulkhead No. 2 without the use of ballast and flies smoothly so trimmed. There were, however, some difficulties experienced at first during the low-speed taxi attempts. First was that of the engine quitting if one attempted to taxi during the latter part of a flight. Eventually, a theory was brought forth, that if the gas tank were less than half full during a slow rolling taxi attempt, the absence of centrifugal force allowed the fuel to settle in the tank and the pick up tube would no longer pick it up. Solution was to relocate the pick up tube (see drawings) deeper in the tank. (No inverted fiying under this setup, please.) This solved that problem, but now on prolonged taxiing the engine seemed to bog down and quit. For this one, the near scale diameter 9 x 6 Power Prop was trimmed to an eight inch diameter. We could now taxi anytime and for as long as required. In addition, it was noted that when the model is flying at idle speed or making a landing approach, the ship is actually on the verge of a stall. You've had it if you run out of fuel and your engine poops out at this time. It's good business to schedule your operations according to your known tank run.

A typical contest flight goes something like this. From an unassisted standing start, the model is taxied a quarter lap and stopped. With a roar she takes the air in a long, smooth climb and flies five laps. The ship then flies one lap at half speed and then completes the remainder of the ten qualifying laps at normal speed. The ten laps in, she settles in a long glide and touches down gently The model taxis a full lap and stops within inches of the desired goal. With a roar she climbs again, flies a lap, touches down, climbs again, flies another lap and touches down again. Sound like fun? It's great fun for the flier and spectators alike.

CONSTRUCTION

The wings have both sweepback and dihedral and it can be a bit tricky to assemble the panels accurately. Try this simple jig. Take two 8 x 20 inch boards and block up the ends until the correct dihedral angle is achieved. Tack the plans on the jig and the wings can then be built

EIGHT TECH MANUALS WITH PLANS, PHOTOS, DATA, FAMED PLANES.

TECH MANUALS 50¢ each.

B-25 MITCHELL
Best medium bomber WW 2, the ship used by Doolittle on Toyko raid from carrier.

B-24 LIBERATOR
Companion in arms to the B-17, the Liberator "heavy bomber" noted for range.

B-17 FLYING FORTRESS
The most famous of all the World War 2 warplanes, B-17 "heavy" was tough ship.

CURTISS P-40
From beginning to end, P-40's prominent in all theatres excepting the European.

F-86 SABRE
What the Mustang was to WW 2, the Sabre was to Korean war. Classy jet fighter.

F-94 STARFIRE
All-weather jet with tremendous rocket firepower, seeks out intruder by radar.

B-47 STRATOJET
More of these six-jet bombers in Strategic Air Command than any other machine.

B-29 SUPERFORTRESS
Great range, big punch, remote control firing system, made B-29 a super bomber.

AIR AGE INC.
551 Fifth Ave., New York 17, N. Y.

Herewith $..... for the following booklets in your TECH MANUALS at 50¢ each.

.....copies B25
.....copies B24
.....copies B17
.....copies P40
.....copies F86
.....copies F94
.....copies B47
.....copies B29

☐ Enclosed $3.50 for all eight copies.

Name .....

Address .....

City ..... State .....

the LINDBERG line®

is proud to PRESENT

ONLY 98¢

MESSERSCHMITT ME-262

This German fighter was one of the first operational jet aircraft of World War Two, it was exceedingly fast. This plastic model is loaded with such detailing as—movable controls, twin jet engines, retractable landing gear and covers, inspection hatches, authentic German pilot and mechanic. When assembled the model is 8¾" long —10⁷⁄₁₆" wing span, 1¼" scale.
Kit No. 538 71 parts

IN THE NEW LINDBERG FULL COLOR SEALED "CELLOVISION" PACKAGE

COMPARE LINDBERG-MODELS WITH OTHERS FOR ASSURANCE

as a one piece unit with correct sweepback and dihedral angles assured. Block up the ⅜ x ¾ in. leading edges with 3/32 in. shims and pin them and the ¼ x ½ in. spars over the plans. Block up ribs A, B, C, and D with 1/16 inch shims and then cement all the ribs and tip parts into place. Remember the 1/16 in. diameter brass tubing rigging wire guides should be bound to Ribs "F" before those ribs are cemented in place. While this assembly is drying, the ailerons and landing flaps can be built and the ⅛ inch plywood front and rear spars cut out. Make up the wire landing gear struts and bind them to the spars with thread and cement liberally. Pick up the wing assembly and cement these spars in place. After the free ends of the landing gear struts are bound and soldered together, we can sheet cover both sides of the center section and add the short rib and sheet assembly aft of the spar. The entire wing assembly, including the flaps and ailerons can then be sanded to shape.

We can now install the rigging wire hardware. Start by soldering the brass brackets and 1/16 in. dia. brass tubing rigging wire guide assemblies to the rear landing gear struts. Then pass four lengths of 1/16 in. dia. brass tubing through rib "A" and solder them into the brass plate mounted flush with the sheet covering. Cementing lengths of 1/16 in. dia. brass tubing into holes drilled in the leading edges near rib "F" completes the rigging hardware in the wings. Continue by cementing the 3/32 in. dia. aluminum tubing hinge bearings and balsa filler strips to the wing and flap spars. Next build a sheet balsa sandwich around the landing gear struts and shape those fairings. Give the wing, flaps and ailerons a final sanding add the lead outboard wing weight and then cover each part with silk. Then run the hinge pins through the wing and landing flap bearings and solder the brass flap control horns in place. Slit the covering and cement the line guide in place and set the wing assembly aside.

The tail parts should go quickly. Shape the fin, rudder, stabilizer, and elevators out of 3/16 in. sheet balsa. Install the control horn and 3/32 in. dia. aluminum hinge bearings on the stabilizer and elevators. Push the hinge pins through these bearings and then add the elevator balance tabs with reinforcing pins. Cement the fin to the stabilizer, dope silk over each part and set them aside.

Start the fuselage by cutting out all the bulkheads and making up the motor mounts and crutch members. Bind the lengths of 1/16 in. dia. brass tubing to both sides of bulkhead No. 2 and then slip the motor mounts through bulkheads 1, 2 and 3. Build up the intermediate throttle and flap control bellcrank using the motor mounts as a bearing for the axle. The motor mounts crutch members and all the bulkheads can then be cemented together. The heavy grooved crutch members and notched bulkheads assure that the basic fuselage frame will go together swiftly and accurately, and also enable this structure to survive the handling it will take while the various control linkages are being installed. The Fox 25 should have the exhaust slide and venturi butterfly valve modifications installed and then be bolted into place. The extension prop shaft is used to shift the engine deeper in the cowling to insure that the throttle apparatus can be completely cowled in. Install the Roberts bellcrank, the stabilizer assembly and the fuel tank and then make up all the various control linkages. Add the tail wheel assembly and then plank the lower half of the fuselage. Cut

Building PLASTIC Kits?

. YOU NEED

Handy brush-in-cap bottle 15¢

Long-nozzled tube puts C-Ment where you want it 15¢

pactra C-MENT

The deep-welding cement for ALL plastic materials that makes sturdier models. Used, recommended or included by leading kit manufacturers . . .

and pactra 'namel

15¢ Jars 18 authentic colors 6 new Flat Colors

The original paint for plastics . . . non-etching, non-crazing . . . flows on smooth without brush marks. Authentic colors for cars, planes, ships, guns. Remember, your model "isn't finished until it's painted!"

Complete Paint Kits— 49¢, 69¢, 98¢

pactra Chemical Co.
1213 No. Highland Ave.
Los Angeles 38, Calif.

Complete Listing

MODEL AIRPLANE NEWS FULL SIZE PLAN SERVICE

The editor's selection of all time favorites, including completely new combinations of the greatest designs. All types!

PLAN SETS 50c p.p.

PLAN OF THE MONTH

56. RYAN PT-22: U/C, .19-.25.
SNIPE: Gurnett's Nordic.
Lovely scale job, that PT, with workable flaps, throttle.
Tow-line glider long, strong wing, right sections, etc.

1. GIMLET: RC Low wing .049.
ROYONO: Contest FF A&B.
So low wings RC are new? Gimlet started it all!

4. SURE FUN: UC Sport, .29-.35
PROFILE SILVAIRE: FF Profile, ½A.
ZEPHYR: Rubber, Fuselage
Control line on floats. Sport Gassie.

6. HIGGINS CABIN CRUISER: RC Boat, .09-.19.
FOKKER D7: Scale, U/C, .29-.51.
The great all-time favorite? Try the Fokker D-7.

7. WORLD CHAMP GL.: Nordic Winner.
HI BOY: Cabin Stunt, Palmer-Goyet, .29-.35
POW WOW: Bob Palmer stunt, .29-.35
Collector's item—two Palmer models!

8. GEE BEE: Scale U/C, .19-.25.
DRAKE: FF, flying boat, .049.
DURANITA: FF, bipe, .049.
More people built the Drake than any other ship.

9. AEROCOM'DER: Scale, U/C, 2 .15.
MARS: Bob Palmer stunt, .29-35.
NOBLER: Aldrich's Nats Winner, Stunt, .29-.35. Palmer and Aldrich, plus a twin ukie. Imagine!

10. SMOG HOG: Bonner's Multi RC, .19-.35.
STRATOLINER: 2 Half A, U/C.
GUARDIAN: U/C Scale, .29 up.
Greatest Multi RC of all time—a beauty!

11. GAMBLER: Mirror Stunt Winner, .29-.35.
DOUGLAS B-66: ducted fan FF, .049.
B-66, the ducted fan job that beats all others.

12. WHIRLING WINGS: Sikorsky XH-5, .15, 'copter.
BREEZY: Small field RC, .049.
SPITFIRE: Stunt, semi-scale, .29-.35.
P. Schoenky, 'copter master-his Sikorsky!

13. T-CRAFT: FF scale, .049.
FENO: Combat, stunt, .29-35.
PADDY'S WAGON: Contest FF, .049.
Paddy's Wagon—one contest job ok for beginner.

14. HEATH PARASOL: RC, FF, Scale, .075 .09.
GUARDIAN: Nats carrier winner, .29's.
SHARPIE: FF Sport, .02-.049.
—Guardian a dilly.

15. RE-8: WW1, U/C. .29-.35.
FLAPPING WINGS: Rubber, ornithopter.
BOOMER: FF, sport, pusher, .049.
Can planes fly like birds? Ornithopter sure does.

18. PAACKHORSE: PAA Load FF .15.
AIRNOCKER: Scale, FF .049.
What model hit the jackpot? Airknocker—the Champ.

27. FLAMINGO: RC Amphibion, .15-.23.
UPSTART: Best B-C FF, on .29-.35.
NACA planing hull make Flamingo stand-out RC. UPstart—it goes!

40. MUSTANG: U/C Scale, .29.
BI-GONE: Sport, FF, ½A.
GLIDERS FIVE: HL Sheet.
Mustang, Jim McCroskey's Nats winner. Bi-Gone, nifty bipe.

43. EQUALIZER: .15 to .19 multi, RC.
QUICKIE TRAINER: Speed, .29.
AMAZOOM: FF, contest, .15.
deBolt's best, the Equalizer? Amazoom—Stan Hill's hi-thrust.

44. CONVAIR'S DELTA: Jetex FF.
LIL DYNAMITE: .15 stunt, UC.
SWAT: ½A, FF, contest.
A trio of exceptional planes.

45. ASTRO-HOG: Multi RC, .29-.35
MITCHELL: Profile, .09's, .15's UC.
Dunn's low wing radio—tops! Nothing matches this multi. The Mitchell a fine flier.

46. PROPJET B-47D: U/C, .15's.
RUFFY: Stunt, .29-.35.
NOR'EAST'ER: Nordic glider.
B-47D, beaut of a project
Ruffy: big winner—it's new!

47. FOKKER E-3: 1/2A, FF, Scale.
NAVY RACER: Rubber, semi-scale.
WOODY: .29-.35, UC Combat. Hot!
E-3, beautiful model, fine flier.

48. SPORTCOUPE: .09, U/C, Stunt.
WHATIZIT: .35, Combat, Wooten.
SWIF-F-FT: Jetex, two sizes!
Whatizit, settles fuse-wing debate!

49. CONQUISTADOR: .29-.35, U/C Stunt.
TWO-STAGE ROCKET: Jetex (2).
Stunter is a thing of beauty, and it flies as well as it looks!

50. DUMBO: PBY Scale, U/C, .19's.
FRENCH OLDTIMER: 1914, ½A, FF.
Dumbo, the Catalina, man-sized ukie, takes off, lands on water or ground.

51. AMERICANO: .15 FF, by Blanchard.
BOMARC: Scale, Jetex, missile.
CUTLASS: Sport U/C, .049's.
Scorpion power makes Bomarc terrific flier. Americano is National Champ's very latest.

52. GAUCHO: RC Stunt, .29-.35.
THE CHAMP: Best U.S. Wakefield.
LAIRD SOLUTION: U/C Scale, .15-.23.
Gaucho, Argentine Champ, does pattern inverted. Champ, a single Wakefield!

53. SNAP: Sport U/C, .19-.23.
PELICAN: PAA Cargo, .049.
WINDMILL: FF, 'giro, .02-.049.
For proto take-off and landing realistic Snap tops 'em all. Other two, collector's items.

54. SATELLITE: Hunter's FF, .19-.35.
SUPERMARINE S-6B: U/C Scale, .09-.15. Satellite is top contest free flight '58-'59. Schneider racer, S-6B seaplane is one of FAST club's best projects.

55. DETROIT STUNTER: U/C .29-.35.
HORNET MOTH: FF, Scale, .02-.049.
THE BARDON: Wakefield.
D'troit St.: McDonald's Strathmoor, Nats favorite. Bardon: Canadian and US Nats winner, tops in rubber.

PLAN SETS 50c p.p. NO STAMPS PLEASE

MODEL AIRPLANE NEWS • 551 FIFTH AVENUE, NEW YORK 17, N. Y.

Enclosed is _____ for plan sets numbered in boxes below

PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #

Please print your number DISTINCTLY in box for each plan you desire.

PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #

List additional plan orders on separate sheet.

NAME PLEASE PRINT

ADDRESS

Limited Supply of Plans Listed Below. Order Early! Check Correct Number on Coupon.

22. Mooney Mite, '55 Rambler, Waco Cabin
23. Humdinger, Old Faithful, Cessna 180
24. Aero Bat, Snoopy, Seagull
26. Corsair, Gyro-Glider, Santanita
29. Cougar, '55 Nordic Winner, Dizzy Boy
30. Great Lakes Trainer, Triple Threat RC
32. Mig-15, Fifinella, Coquette
33. Skyraider, Dunwoody's Nordic, Flexi-Bull-It
34. Corben Super Ace, Cessna 310, Profile Lightning
38. SE-5, Curtiss Robin, Nobody

the planking and temporary planking aids away and cement the wing into place. Solder up all the linkages, check them for free and correct operation and then plank the remainder of the fuselage. Remove the engine, build up the cowlings, add the rudder, tail fairing blocks, and wing fillets. Sand the entire fuselage smooth and dope silk over it. After adding the strut fairings, ⅛ x ¼ inch pine struts and ¼ inch dowel halves, we can cut out the cockpit openings and install the headrest.

We should now be ready to finish the model. At this time the entire model should have been sanded smooth and should have silk or tissue doped over each part. Then brush on six coats of Aerogloss clear dope, followed by six coats of Aerogloss balsa fillercoat. Spray the wings (fillets included) and tail surfaces eight coats of Aerogloss yellow. With the yellow masked off, the fuselage, struts and landing gear fairings were sprayed eight coats of Aerogloss silver. Keep in mind that these coats of fillercoat and dope were wet-or-dry sanded at every second coat. The red, white and blue insignia and the black anti-glare panels and lettering should be sprayed four coats which needn't be sanded. Peel off the masking tape and hand rub the entire model. A careful job should have netted a sparkling finish.

A few more details and we'll be out flying. Use various thicknesses and diameters of celluloid rings alternately spaced to simulate the cylinder cooling fins and spacers. The dowels serve both as a guide and a reinforcing rod. Dope the cylinders black, install on the fuselage and finish off with the assorted tubing details. Follow this with the windshields, wingwalks, ailerons and wheels. The rigging wires may be installed thus. Bend a sharp angle in a length of music wire and pass it, from the top, through the rigging wire guide at rib "F". Sweat solder one end into the tubing rigging wire fix near the windshield. Bend the other end and pass it through the landing gear fairing rigging guide and bend it toward the fix at the wing center line. Sweat solder the wire into this fix and then repeat the entire procedure for the three remaining sets of rigging wires.

Use a .012 stranded cables 52½ feet long for flying. A few flights to familiarize yourself with the plane and the Roberts handle and you'll be armed to the teeth for the contests to come.

The '58 contest season is over. My scale model Ryan had done well that season, but her original lustre is fading. Without new equipment 1959 will be a–unh–er–ah –whoa boy!!!

New Look in Batteries

(*Continued from page* 35

channel systems; VO-800's on eight channel, equivalent, or larger systems.

The nominal VO battery under load is given in the specs as 1.2 volts. However, in model use, 1.25 volts is more accurate. Drycells under load drop rapidly from 1.5 to 1.3 volts where they remain for most of their useful life. Thus, the nominal dry-cell voltage for model use can be considered 1.3 volts. (Operational differences due to the slight voltage difference between VO batteries and dry-cells are virtually absent.) Both dry-cells and the VO batteries have the same discharged voltage of 1.1 volts under load.

There are numerous uses where the VO series batteries can be used to distinct advantage. One is glow-plug power carried in the model. Due to the extremely low internal resistance of the batteries, they will deliver high currents efficiently without damage. Thus, even one VO-500 will light an average glow-plug (3 amperes) for ten minutes. For team racing and R/C, power is readily available at the flip of a switch–for only one ounce weight penalty. Two VO-800 batteries connected in parallel make a very convenient external starting battery. Other uses include servo and escapement power, power for model boats and cars, filament supplies for transmitters and receivers.

The chemical action of a VO battery is entirely different from the customary lead-acid type. The electrolyte does not take part in the chemical reaction. The chemical reaction in nickle-cadmium cells is one of raising the active material to a more active state, rather than changing the plates to different materials as with the lead acid type. Since the electrolyte doesn't take part in the chemical reaction, its specific gravity remains virtually constant, independent of the state of charge of the battery. There is no need to ever check the electrolyte. Thus, the batteries can be hermetically sealed if gassing is prevented.

Gassing is caused by electrolysis of the electrolyte solution during the charge cycle. It would cause sealed batteries to swell and burst. Prevention of gassing is accomplished by charging the batteries below a specified maximum rate, just under the point at which gassing will occur anywhere in the charge cycle. Since the electrolyte never varies and gassing is prevented, the batteries are all completely sealed and maintenance free. They are essentially rechargeable dry-cells. From the Battery Specifications Chart, the size and weight of the individual batteries can be determined. The batteries are light and extremely compact when compared to their dry-cell counterparts. The VO-800 case is made of extremely tough, molded, unbreakable plastic. It should never shatter on impact even in extreme cold. The cases of the button cells (VO's −100, −180, −250, −500, −1750) are all identical, varying only in size. They are made of plated steel. The positive case, or face, of the button cell is made to slip concentrically inside the negative case and is separated from the latter by a plastic seal (see photo). This seal insulates one semi-case from the other and seals the battery permanently.

The terminals of the VO-800 battery are screw studs, using nuts and lock washers for lug-type connections. There are no terminals, as such, on the button cells. The face of the battery is the positive terminal, and the back case is the negative. Connection is made by carefully soldering wires directly to the battery, or by compression type holders.

The superior performance of these batteries is due primarily to their plate construction. Both the positive and negative plates begin as nickel plated steel strips to which nickel powder is sintered. The sintering process produces a lattice structure of vastly increased plate surface area. The cadmium hydrate (neg. plate) or the nickel hydrate (pos. plate) is impregnated in the lattice structure of the plate. The large resultant plate area produced and the sintering process aid in achieving the extremely low internal resistance of these batteries. This is one reason for their excellent cold weather and high current characteristics. In the case of the VO-800, the terminals are put on and welded to the plates. The insulating separator material (primarily nylon and fibre glass) is then wound between the plates.

The plates of the button cells are made on one continuous strip, much like paper dolls. One strip of positive plates and one strip of negative plates are then folded over each other, forming a compact, round stack. Insulating separators (fibrous type

MODEL PLANS and BOOK CARNIVAL

MODEL PLANS DETAILED PLAN PACKETS ONLY $1.00 ea.

CONTROL LINE SCALE MODELS
1 inch–1 ft. scale. Include description, photos, data and 3 small views. Figures after model name indicate wing span.

PACKET "10 PP – FIGHTERS
All AB am C. Hawker Typhoon 38½", North Amer. Mustang P-51 36½", Spitfire 1x 37", Focke Wulf 190A3 34", Vought Corsair 38".

PACKET #14 PP – LIGHT PLANES
All AB. Piper Sky-cycle 30", Johnson Rocket 31", Globe Swift 29", Ercoupe 30", Culver V 29".

PACKET #4PP – WW1 FIGHTERS 1/4" SCALE
Fokker D7 7½", Sopwith Camel 7", Fokker D8 7", Nieuport 17C.1 6½", Spad 13C.1 6½", Albatross DVa 7½", SESa 6½".

5 FULL SIZE PLANS $1

Full size plans of famous control-live and free flight gas models. No drawings to enlarge. Riles, bulkheads, construction views included. Photos & sketches show extra details.

FOLIO NO. 1 Knight Twister, Conn. Yankee, The Hep Cat, Curtiss Helldiver, Tethered Trainer.

FOLIO NO. 2 Pusher Pursuit, Culver Cadet, Kill Special, Gee-38, Hall Racer.

FOLIO NO. 3 A.T.S. Flying Tab, Stahl's Corsair, Could Be, Copperhead, The Bob Cat.

ALL 6 PLAN PACKETS only $3.00

FREE.. Bonus Book

"Model Plane Winners" Worth $1.00 FREE with Every Order for $2 or More

MODEL BOOKS

Monographs for the Aeromodeller	.50
How to Build Solid Scale Model War planes	.50
Design & Construction of Flying Model Airplanes	2.00
Junior Model Airplanes (Powell)	1.50
Design of Wakefield Models	.50
ABC of Model Aircraft Construction	1.25
Indoor Flying Models	1.25
Petrol Engines for Model Aircraft	.75
Model Flying Boats (Sizer)	.50
Model Gliders (R.H. Warring)	1.25
Airscrews for the Aeromodeller	.50
Flying Fortress (Ray)	.50
R/C for Model Boats (Mc Entee)	1.00
Model Boat Radio Control	1.35
Model Car Rail Racing	2.10
Radio Handbook (McEntee)	2.25
Radio Control (Berkeley)	1.00
Gas Models & Engines	1.50
Control Line Planes	1.00
Model Control by Radio	1.00
Flying Scale Models (Musciano)	.50

BOOKS FOR SOLDIER COLLECTORS

History of Regiments & Uniforms of British Army	$7.50
History of Regiments & Uniforms of Scottish Army	7.50
Regiments At A Glance	3.50
Hussars of The Line	4.00
Regiments of Scotland	2.00
Cigarette Cards & How to Collect Them	1.50
All About Cigarette Cards	1.00

Dealers-Jobbers Reg. Trade Prices

POLK'S HOBBIES

314 FIFTH AVE., Dept. MA39, N.Y. 1

SEND ONLY $2.95

FOR THIS $11.95 BOOK

(remaining $9.00 to be paid $3.00 per month)

"AIRCRAFT OF THE 1914-18 WAR"

by Thetford - Riding - Russell

ONLY BOOK
THAT COVERS
ALL PLANES FLOWN
IN WORLD WAR ONE

DELUXE BOUND

CONTENTS

Only book that contains not only all the Aircraft flown in World War One, but also hundreds of photos and drawings of rare and experimental type so hard to find. Book is cloth bound, 234 large 11 x 8 3/4" pages, 80 full page 1/72" scale plans shown of planes from USA, England, France, Germany, Italy, etc. Full page photos of Squadron line ups, plus half page and third page photos of each plane, in all over 200 photos. Full Dimensions, Weight, Armament, Performance, Power Plant, and constructional details are given for each plane, plus its Operational History. This book is of great interest to any who have flown these old planes, to any who are interested in the building of true scale Museum type models, and to those who simply like to see top notch photos and write ups about these, now rare, aircraft. This book is a collector's item. Book weighs almost 2 pounds, it is sold on a money back guarantee, after you have paid for the book in full, if not satisfied with it we will grant a full money back refund within 10 days after you have received it.

SAMPLE PAGES and Circular about the book above .....25c ☐

CHECK OFF THE FORM BELOW and PRINT your name and address in column this ad add 25c, postage per book.

Please send me the 14-18 book above, I enclose full $11.95 ☐

Please place me on order for the 14-18 book above, I enclose only $2.95.....☐
I agree to pay the remaining $9.00 in three monthly payments of $3.00 each

Also available "PLANSBOOK" contains over 1000 different plans, including hundreds of 14-18 Aircraft "PLANSBOOK" comes with $1.00 Credit Voucher which can be used on future purchases..... "PLANSBOOK" $1.00 ☐

"AERONODELLER" magazine contains scale plans. Year sub. $4.50. Sample 25c ☐

Gull Model Airplane Co. 10 E. Overlea Ave., Dept. M2 Baltimore 6, Md.

paper) are then inserted between the plates. Before packaging, the assembled plates of both types of batteries are subjected to tremendous pressure to compact them. This further reduces the internal battery resistance as well as physical thickness. As stated, the plates of the VO-800 are welded to the terminals. The button cells again are different. Electrical contact is due to internal pressure. The stack of plates does not completely fill the case of the button cell. The extra space is taken up by a very stiff triangular shaped spring tensioner (see photo). This puts great pressure from the negative case to the plate stack, pressing it firmly against the positive case; thus, insuring electrical continuity. These batteries have been subjected to complete environmental testing, including extremes of temperature, shock, vibration, etc. Examples are 190° Fah. operation for one hour and impacts of 4,000 "G's" for several milliseconds duration. (The second and concluding part of this article will appear in the April issue—Ed.)

Bulletin Board

(*Continued from page* 34)

and stabilizer area points are spelled out; you no longer have to use a scale-sized prop for flying, and you must do 40 seconds in order to get any points at all. Duration points are eliminated but you still get up to 30 points for take-off and up to 30 for scale type flight and landing approach.

Combat—A "safety zone" is now required between the model and the "kill zone" and any contestant hitting in the "safety zone" loses the flight. Also any contestant causing a collision may be disqualified by the judges and you lose 25 points for any landing (or crash) during the flight.

Navy Carrier—Now requires 20-G pull test and auxiliary lines must come out of the model "with or between" elevator lines. Also there's a five-point-each bonus for extra engines and you are permitted a 5% tolerance in scale dimensions of major components. Multi-engine models may cut some engines during the low-speed portion of the flight.

Precision Acrobatics—"Workmanship" and "originality" replace "detail" and "design" in appearance points. It is no longer mandatory to give a hand signal before every maneuver and only one entrance is now permitted into figure eights—the inside loop first. A Junior pattern is being studied.

Radio Control—Only changes in any RC events are that actuated brakes and steerable tail wheel are not permitted in Rudder Only, and this class is now restricted to single-channel equipment.

General—Free flight runways now must be at least 4 feet by 16 feet. Proxy flying

conrad connrod

LOOKIT THIS 1938 M.A.N. THOSE WERE THE GOOD OLD DAYS - THATS WHEN IT TOOK SKILL - NO PLASTICS NO PREFABS - - HAD TO CUT OUT ALL THE RIBS AND BULK-HEADS WITH A DULL RAZOR BLADE .. SNIFF
OH, JUST THINKING ABOUT THE OLD DAYS BRINGS TEARS TO MY OLD EYES . . . SNORT SNIFF
OK, BOYS YOU'RE NEXT WHAT CAN I DO . . .
UHATTA TRYNA PULL MR. SUMMERS, THIS DIE CUTTING IS LOUSY AND THE PRE-FORMED COWL IS SCRATCHED AND IT SAYS YOU CAN BUILD IT IN AN HOUR, AND WE'VE BEEN ON IT THREE ALREADY, AND —

is specifically prohibited in Indoor and Outdoor Hand-Launched Glider, Combat, Navy Carrier, Precision Acrobatics and all RC events. Team entries are prohibited in Indoor and Outdoor Hand Launch. And no more wrap-around numbers in speed . . . wing numerals now have to be at least "one inch or one-third of the wing-root chord, whichever is smaller."

Competitors for the national championship now can specialize a bit more. They now can fly two events each in Free Flight Gas, Control Line and Free Flight Non-Gas and three from whichever categories they choose. Also points go from 100 for first place time (not including fly-off flights) to zero time rather than the lowest recorded score.

• • •

On the subject of rules, Pan American has slightly revised its 1959 regulations (See *Bulletin Board*, Feb. issue) to allow a 48-inch maximum dimension in Clipper Cargo and to prohibit any mechanical assistance in hand launching PAA-Load Gas models.

• • •

Cheminol Corp. has come up with a new type glow plug (patent pending) with a tunnel-shaped deflector protecting the filament from wet fuel and carbon particles. Deflector is also designed to provide high-turbulence combustion for more efficient burning. Cheminol calls it "Kwik-Start HiLo Glow Plug" and claims it will enable modelers to run engines down to 900 RPM and boost top RPM by 1000. Principal aim of the plug is two-speed running in RC and control-line jobs, but Cheminol also figures it's a good bet for low-power flight testing.

• • •

Different slant on indoor meets—indoor control line meet at Niagara Falls Naval Air Station, Feb. 22, for A, B, and Proto speed, Scale and Rat Racing. It's not a "first" but it is unusual. For info, contact Warren Guerr, 265 Buckeye Drive, Buffalo, N. Y.

• • •

Two newly formed clubs. First, at Phalsbourg Air Base, in France: the Falconeers. Interested modelers in the area are requested to contact T/Sgt. Jack B. Schneider, 7486th Instlron, APO 115, New York, N.Y.

Second one's closer to home, the Baychester (Bronx, N. Y.) Radio Control Club. Already 59 members, they're interested in new youngsters of high-school age who are just starting in RC. Contact is Nancy Perretti, 4119 Grace Ave., Bronx 66, N. Y. Nice little newsletter for members.

Also in the mail were copies of "The Flite Master" (Lakewood, Ohio), "The Dope Can" (Ravin Cajuns, New Orleans, La.), and "Model Flying" (Society of Model Aeronautical Engineers, London—English equivalent of the AMA). And that is all the timer allows!

Dawn to Dusk

(*Continued from page* 15)

larger and slightly heavier than the CG receiver, the TR-4.5 had a much lower current drain and was equal, or slightly better as far as sensitivity was concerned. This receiver should not be overlooked by anyone desiring to make an endurance flight.

The ESSCO THT receiver was used with excellent results during all test flying and was in the first record attempt plane. Compact and lightweight, this unit had the best sensitivity of all receivers checked and rated second for this use due to the filament drain required. To overcome this minor problem, a Silvercell was used. Since it was the purpose of this flight, of

SIG BALSA WOOD AND MODEL PRODUCTS

AIRCRAFT BALSA

STRIPS 36" Lengths		SHEETS 36" Lengths		PLANKS 36" Lengths	
1/16x1/16	1¢	1/32x2	10¢	1 x1	40¢
1/16x1/8	4/5¢	1/16x2	10¢	1/2x2	30¢
1/16x3/16	4/5¢	3/32x2	12¢	3/4x2	45¢
1/16x1/4	3/5¢	1/8 x2	15¢	1 x2	60¢
1/16x3/8	2/5¢	3/16x2	18¢	1½x2	80¢
1/16x1/2	3¢	1/4 x2	20¢	2 x2	96¢
1/16x3/4	4¢	3/8 x2	25¢	1/2x3	50¢
1/16x1	5¢	1/32x3	16¢	3/4x3	78¢
3/32x3/32	4/5¢	1/16x3	18¢	1 x3	1.00
3/32x3/16	3/5¢	3/32x3	18¢	1½x3	1.25
3/32x1/4	2/5¢	1/8 x3	20¢	2 x3	1.44
3/32x3/8	3¢	3/16x3	25¢	3 x3	2.00
3/32x1/2	4¢	1/4 x3	30¢	1/2x4	65¢
3/32x3/4	4¢	3/8 x3	40¢	3/4x4	1.00
3/32x1	6¢	1/32x4	25¢	1 x4	1.30
1/8 x1/8	3/5¢	1/16x4	25¢	1½x4	1.85
1/8 x3/16	3/5¢	3/32x4	25¢	2 x4	2.52
1/8 x1/4	2/5¢	1/8 x4	30¢	3 x4	2.88
1/8 x3/8	3¢	3/16x4	35¢	1/2x6	1.10
1/8 x1/2	5¢	1/4 x4	40¢	3/4x6	1.60
1/8 x3/4	6¢	3/8 x4	50¢	1 x6	2.00
1/8 x1	8¢	1/32x6	50¢	1½x6	2.45
3/16x3/16	2/5¢	1/16x6	50¢	2 x6	2.88
3/16x1/4	3¢	3/32x6	55¢	3 x6	4.32
3/16x3/8	4¢	1/8 x6	60¢	1/2x8	1.45
3/16x1/2	6¢	3/16x6	65¢	3/4x8	2.05
3/16x3/4	8¢	1/4 x6	70¢	1 x8	2.55
3/16x1	10¢	3/8 x6	90¢	1½x8	3.20
1/4 x1/4	4¢	1/32x8	75¢	2 x8	3.95
1/4 x3/8	5¢	1/16x8	75¢	3 x8	5.90
1/4 x1/2	7¢	3/32x8	85¢		
1/4 x3/4	9¢	1/8 x8	92¢		
1/4 x1	12¢	3/16x8	1.05		
5/16x5/16	6¢	1/4 x8	1.15		
5/16x3/8	7¢	3/8 x8	1.35		
5/16x1/2	9¢				
5/16x5/8	11¢				
5/16x1	14¢				
3/8 x3/8	7¢				
3/8 x1/2	9¢				
3/8 x3/4	13¢				
3/8 x1	16¢				
1/2 x1/2	11¢				
1/2 x3/4	16¢				
1/2 x1	20¢				
5/8 x5/8	16¢				
5/8 x1	24¢				
3/4 x3/4	25¢				
3/4 x1	30¢				

SECOND GRADE BALSA 3" x 36" ONLY

TAPERED TRAILING EDGE 36" Lengths

1/8 x1/2	7¢
3/16x3/4	10¢
1/4 x1	12¢
5/16x1¼	15¢

48" Lengths	
1/8 x1/8	2¢
1/8 x1/4	4¢
1/8 x1/2	7¢
3/16x3/16	5¢
3/16x1/2	10¢
3/16x3/4	14¢
1/4 x1/4	7¢
1/4 x1/2	12¢
1/4 x3/4	15¢
5/16x5/16	9¢
3/8 x3/8	12¢
3/8 x1/2	18¢
3/8 x3/4	18¢
1/2 x1/2	18¢
1/2 x3/4	23¢
1/2x3	25¢
1/16x3	25¢
3/32x3	28¢
1/8 x3	32¢
3/16x3	37¢
1/4 x3	42¢
3/8 x3	55¢

Ninety Stock Sizes of Blocks
LEADING EDGE - - - RC BALSA
CONTEST BALSA - QUARTER-SAWN

BAG OF BALSA

MILL ENDS, REJECTS, ETC.

NO. 1 BAG—all blocks ..... 69¢
NO. 2 BAG—blocks, sheets ..... 69¢

BASS WOOD SHEETS

1/16x2¼x18	15¢	3/16x2¼x18	23¢
3/32x2¼x18	17¢	1/4 x2¼x18	28¢
1/8 x2¼x18	19¢	3/8 x2¼x18	35¢

GUY'S SELECT SPRUCE

1/8 x1/8 x48	4¢	1/8 x1/8 x36	3¢
1/8 x1/4 x48	6¢	1/8 x1/4 x36	5¢
1/8 x3/8 x48	10¢	1/8 x3/8 x36	8¢
1/8 x3/4 x48	20¢	1/8 x3/4 x36	16¢
3/16x3/16x48	7¢	3/16x3/16x36	9¢
1/4 x1/4 x48	12¢	1/4 x1/4 x36	10¢
3/8 x3/8 x48	25¢	3/8 x3/8 x36	20¢
1/4 x1/2 x48	25¢	1/4 x1/2 x36	20¢

TUFF & STRONG!

48-PAGE CATALOG

Hundreds of illustrated planes, motors, balsa, fuel, dope, glue, etc. **25¢**

JAPANESE TISSUE

Pre-war quality Japanese tissue produced for us by Japan's leading model builder. 18"x20" SHEET

RED, BLUE, WHITE, YELLOW, ORANGE, BLACK **7¢**

BAMBOO PAPER

Heavier than our regular Japanese Tissue. Bamboo Paper is very tough and strong. Highly resilient on impact for large models. 21"x31" SHEET

RED, WHITE, BLUE, BLACK, YELLOW **15¢**

SIG NYLON

Beautiful white nylon. Very strong but requires more dope than silk.

36"x48" PKG. **$1.00**

JAPANESE SILK

The finest pure silk produced specifically for model covering. SQ. YD.

RED, BLUE, WHITE, YELLOW, GREEN, SILVER **$1.00**

GENUINE BIRCH

Aircraft Plywood

1/32x 6x12	25¢	3/32x12x12	60¢
1/16x 6x12	30¢	1/8 x12x12	70¢
3/32x 6x12	30¢	1/32x12x24	1.00
1/8 x 6x12	35¢	1/16x12x24	1.20
1/32x12x12	50¢	3/32x12x24	1.20
1/16x12x12	60¢	1/8 x12x24	1.40

SIG DETHERMALIZER FUSE

Easy to light, glows hot, absolutely will not go out. Calibrated. 5 FT. **25¢**

BIRCH DOWELS

1/8 x12 3 for 5¢	5/16x12 3¢
3/16x12 each 2¢	3/8 x12 3¢
1/4 x12 2 for 5¢	1/2 x12 4¢

PIRELLI RUBBER

5/32" or 1/4" 1 Lb. Skein **$5.00**

DUNLOP RUBBER

1/8"-3/16"-1/4" 1 Lb. Skein **$4.50**

U.S. T-56

1 lb. $4.00 & Pkgd.

1/8" x25 ft.	30¢	3/16"x50 ft. 85¢
1/8" x50 ft.	55¢	1/4" x25 ft. 60¢
3/16"x25 ft.	45¢	1/4" x50 ft. 1.15

Hardwood Motor Mounts

3/8x3/8x12 10¢ 3/8x1/2x12 12¢
3/8x3/4x12 15¢

MASKING TAPE

NARROW TAPE FOR STRIPING 1/4"-3/8" or 1/2" WIDE STRIPS CLEAN

12 FT. ROLL **15¢**

SEE YOUR DEALER TODAY. IF HE CANNOT SUPPLY YOU, ORDER DIRECT. PROMPT ONE-DAY SERVICE. MINIMUM ORDER $1.00. ADD 25¢ FOR POSTAGE.

MODEL-MAKERS' PINS

No. 8	1/2"	No. 20	1¼"
No. 12	7/8"	No. 24	1¾"
No. 16	1"	No. 28	1½"
No. 17	1¼"	No. 32	2"

STATE SIZE WANTED
1/4 Lb. $1.00
1 Lb. $3.50 PKG. **15¢**

RUBBER BANDS

Pure Gum-High Resistance to Sun & Fuel

No. 8	1/16x 7/8	No. 32	1/8x 3
No. 10	1/16x 1¼	No. 62	1/4x 2½
No. 14	1/16x 2	No. 64	1/4x 3½
No. 16	1/16x 2½	No. 109	5/8x 5
No. 30	1/8 x 2	No. 107	5/8x 7

1/4 Lb. $1.10 1 Lb. $3.95
PKG. **15¢**

MUSIC WIRE

1/32x36 .05	1/16x36 .08
3/64x36 .06	3/32x36 .15
1/8x36 .20	

CARVING KNIVES

SET **$1.95**

12 assorted shapes and edges suitable for all types of carving—wood, linoleum, etc. Hand-ground surgical steel. Each complete with 4½" hardwood handles.

HAND VISE Hardwood Handles **$1.00**
Jaws Open 1"—Positive Grip—

BENCH VISE—LIGHT **95¢**
1¼" Jaws—Open 1"—Machined

BENCH VISE—HEAVY **$1.95**
2½" Wide Machined Jaws—Open 1½"

ADJUSTABLE ANGLE WRENCH **95¢**

HAND SAW **$1.00**
10" Blade—Fine Teeth—4½" Handle

COPING SAW 6" All Metal—With Blade **25¢**

ADJUSTABLE COPING SAW **80¢**
Adjustable Tension—Wood Handle

COPING SAW BLADES 6" 3 for **15¢**

HACK SAW WITH BLADE **25¢**

RAZOR PLANE **$1.50**
Does Straight, Curved or Irregular Work

HAND DRILL **$2.95**
3-Jaw Chuck—Double-Geared

13-PIECE DRILL SET **$2.25**
Chrome Vanadium Steel

4" JEWELER'S PLIERS
Flat Nose, Round Nose, Snipe Nose, Combination, One Side Flat, One Side Round, Diagonal Cutting, End Nippers
PLAIN **$1.25**
HEAVY CHROME PLATED **$2.00**

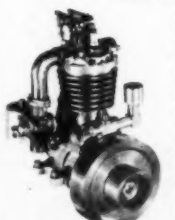
SIG MFG. CO.

401 SO. FRONT
MONTEZUMA, IA.

DEALERS WRITE ON YOUR LETTERHEAD FOR FREE LITERATURE

MINIATURE Gasoline Steam ENGINES

Build your own



MACHINE THEM ON YOUR 6" OR 9" LATHE & DRILL PRESS. IDEAL SCHOOL SHOP PROJECT. Castings available for building gasoline engines ranging from a 5 cc air cooled, single cylinder 2 cycle to a 30 cc water cooled, 4 cylinder, 4 cycle. Steam engines from single cylinder oscillators to reversible triple expansion models. Also available are MACHINED, READY TO ASSEMBLE KITS for other steam engines suitable for radio control boats. Send 15¢ for ILLUSTRATED CATALOG listing castings, blueprints, boiler fittings, ignition parts, marine props, etc.

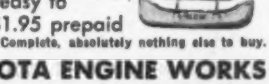
OCTURA MODELS
P.O. Box 536 MN Park Ridge, Ill.

M.E.W. JET ENGINES

M.E.W. 307 JET ENGINE
$14.95 PREPAID

Powerful, 5 lb. thrust
3 in. dia. x 20½ in. long, burns gasoline, complete with spark plug.

M.E.W. 601 JET ENGINE



6 in. long, easy to assemble, $1.95 prepaid
Burns gasoline. Complete, absolutely nothing else to buy.

MINNESOTA ENGINE WORKS
5600 N. Hamline Ave., St. Paul 12, Minn.

MULTI-SERVOS ARE SUPERIOR R/C ACTUATORS!

dmeco's MULTI-SERVOS are THE QUALITY actuators for all radio control uses.

THE SERVO'S MOTOR: The motor used on Multi-Servos is not just adapted to R/C actuator usage, it has been developed over the years to do the work better than any other. For long-life and trouble-free service it uses precision "Oilite Bronze" bearings which are considered tops for this sort of application. The casing is plastic for its light weight and compact size. Electrically, the magnet is Alnico "5", the wonder metal. The brushes are heavy-duty phosphorous bronze, lowest resistance type usable at low voltages. (Carbon brushes have hundreds of times as much resistance, a power robbing factor). The commutator is five pole hard brass set in Nylon and machined for low resistance and maximum circuit continuity. The armatures windings have been carefully selected to give maximum power and torque at the lowest current drain feasible for servo work, 300 ma at 3 volts. Only 2 pen cells are required for reliable operation with any Multi-Servo. As a whole this motor makes the most practical combination for R/C servo work.

THE GEAR TRAIN: All Multi-Servos use spur type gears which are considered the most efficient power transmitters and in addition they are impossible to jam. Reverse loads of any sort will simply force the servo back to neutral. The gear ratio has been chosen to give the greatest power possible at the most usable output speed for R/C controls. The model MX and MC servos use fine Nylon gears running with brass pinions for greatest efficiency and maximum life. The gear box is a compact rugged unit able to withstand much abuse.

THE SERVO CONTACTS: Multi-Servo's heavy duty phosphorous bronze switching contacts are the most positive used by any servo actuator today. The contacts use over 10 oz. of operating force and clean themselves automatically as they open and close with a wiping action. There can be no resistance or appreciable wear with these specially developed switches used exclusively by M ..i- servos.

THE CONTROL BRAKE: Any motor-driven actuator requires some means of controlling enertia and allowing for battery fluctuations. The latest model Multi-Servos provide a vernier type brake adjustment that can be operated quickly and easily with a simple screwdriver.

DESIGN FEATURES: All type MX and MC Multi-Servos use printed wiring for compactness and light weight. Relays may be wired directly to the servos without the use of connectors.

There is a single channel type Multi-Servo available to perform any conceivable model control function including one (SPNX) which will give a second servo operated control.

The multi-channel types give the choice of the following actions: Completely self-neutralizing electronically; fully trimmable; and self-neutralizing plus a trim area about the neutral point. Outstanding is the model MCE which self-neutralizes and yet can be trimmed about the neutral point giving the best features of both the other types of action. The MCE also has a second circuit added for operation of a second control from this servo. These are exclusive features with Multi-Servos.

CONSIDERATIONS: Multi-Servos are developed and manufactured by the World's oldest producer of R/C motor powered actuators. You are invited to compare these fine servos with any other type now offered. dmeco is confident that you will find them to be the most powerful, the lightest in weight, the smallest in size, the most economical to operate and by far the most usable R/C actuators available today!

SERVO INFORMATION BOOKLET..... 25c

deBolt Model Engineering Co.

3833 Harlem Road Buffalo 15, N. Y.

not only establishing a lengthy record, to prove that it did not require complicated, specially built and costly equipment, the transistorized receivers were given preference in the long run. Also, the THT was a carrier-operated receiver and although the flight was made in a rather isolated area, it was felt that a tone actuated receiver would prove more reliable, being less subject to interference.

What was learned from the receiver test program? The radio equipment of today is infinitely more reliable and economical than that of several years ago. Follow the manufacturer's instructions and you should have no trouble.

Batteries: No matter how good the radio and control equipment might be, if you can't supply dependable power to it, you might as well leave it in the box on a shelf. The power supply problem was given our most serious thought and here again a 100% safety factor was considered minimum. Only the receiver and actuator cells and batteries were tested since the transmitter could be readily checked and spares were available. There were four choices of battery types from which to choose. They were, carbon-zinc, mercury cells, silver-zinc and nickle-cadmium. Here again it was decided to use the cell or battery which could be easily obtained and used by any RC builder. The first problem was to determine what was needed in the way of current capacity. With the ESSCO THT receiver there was a filament and B supply to consider. The filament being 1.5v at 35ma. and the B supply 22.5v at .3ma idle and about 4.5ma with signal. The CG receiver used 3v at 10ma idle and 40-50ma with signal. The actuator required three volts at 375ma (Babcock Compound). For the THT unit a Yardney Hr-05 Silvercell was chosen due to small size, lightweight and current capacity. The CG VO cells were not tested at the time this receiver was being readied, otherwise the VO-500 would have been used due to the lower price. The B supply for the THT consisted of two Burgess U-15's in parallel, enough capacity for almost 24 hours use.

The carbon-zinc type dry cells were checked for 1.5 and 3v sources but due to rather low capacity and in variations due to temperature, plus bulk and weight, they were not used. The mercury type cell was considered but later discarded because of higher weight for capacity. The mercury cell is capable of maintaining a fairly constant voltage with a given current drain; however, the cells become quite heavy as you go into higher drain units.

This left the nickle-cadmium and silver zinc cells, both of which were used in the flights. The CG receiver was powered by two VO-500 cells which were checked to about 42 hours continuous operation. Details on this test were given in the January 1959 issue of MAN. Two of these cells were also used for the actuator supply on ship #2. Ship #1 used a rubber motor rewind device which also required two of the VO-500's. Tests showed these cells to be sufficient for 18-20 hours use.

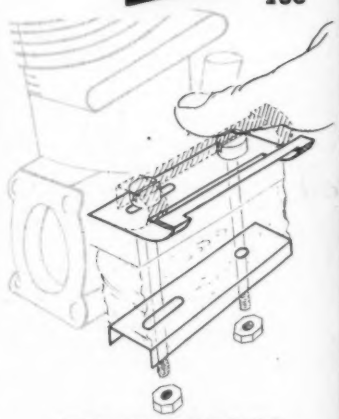
It is quite probable that future endurance attempts will use the VO cells exclusively for the following reasons: They are inexpensive; easy to charge; have no liquids to spill; high capacity to weight ratio and are not readily damaged by excessive charging or standing in a discharged condition. The only critical point we found is that the charging rate *must* not exceed that specified. The VO cells may be left on continuous trickle charge and we recently checked some VO-250's and VO-800's which have not been charged for almost six months and found them completely satisfactory. This type of cell may be wired into the installation and a socket brought out to a convenient spot. Merely plug into the socket at the end of each flying session and you're back in business the next day. The nickle-cadmium cell can be recharged almost indefinitely, as far as RC work is concerned. Another point which had to be considered was vibration and possible shock. The VO cells hold up extremely well under the most adverse of these conditions.

Basically, there is nothing overwhelming about trying for a 12-hour plus flight as far as the RC gear is concerned. Use a little engineering sense and make enough tests to be satisfied you have the equipment you feel you need. Add at least a 50% safety factor for current capacity and time. Take into consideration any extremes in temperature you may encounter. We based our tests on a low of 60 degrees F and a high of 115 F. The use of stranded wire is a must and some of the cell and battery connections were paralleled in the record attempt installation. Secure all cells and batteries in such a manner that they are unaffected by vibration. This is especially true when using hearing-aid type batteries, since intercell connections can give trouble under vibration and shock. Burgess batteries were used because of the conductive wax used in making intercell connections.

Transmitters: Used for carrier operation

(*Continued on page 66*)

ALL-NEW!
FOOL PROOF
PAT. PEND.
SAFE-T-LOCK
MOUNTING BOLT SET
BY KAP-PAK
19c



FITS ALL 19 TO 35 ENGINES

Also available for mounting engines

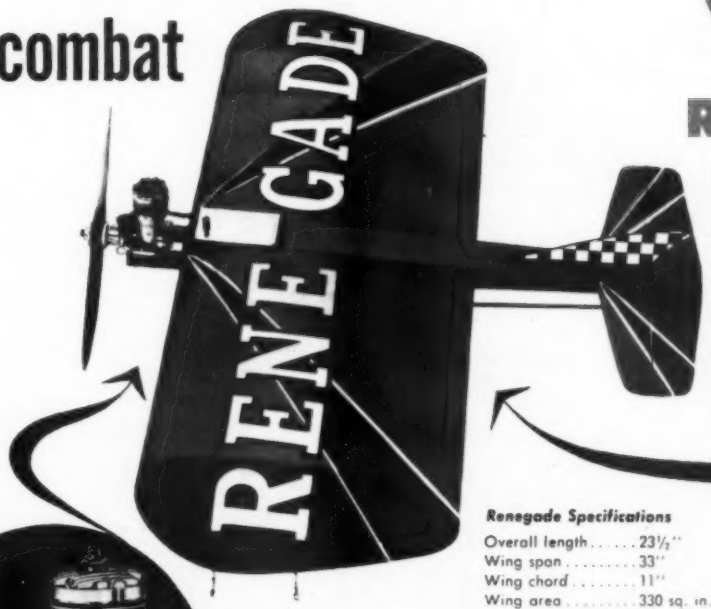
V5	4-40 x 1",	Bolts with elastic stop nuts....19c
V6	4-40 x 1½",	Bolts with elastic stop nuts....19c
V7	3-48 x ½",	Bolts with elastic stop nuts....19c
V8	3-48 x ½",	Bolts with elastic stop nuts....19c
V10	4-40 x 1¼",	Bolts with regular nuts.....19c
V11	4-40 x 1",	Bolts with regular nuts.....15c
V12	3-48 x ½",	Bolts with regular nuts.....10c
V13	3-48 x ½",	Bolts with regular nuts.....10c
137	3-48, Quantity 4—	Blind Mounting Nuts.....20c
138	2-56, Quantity 4—	Blind Mounting Nuts.....20c
253	4-40, Quantity 4—	Blind Mounting Nuts.....15c

KAP-PAK PRODUCTS, INC.
156 WEST WALTON PLACE, CHICAGO 10, ILLINOIS

Veco's answer to combat

VECO

RENEGADE

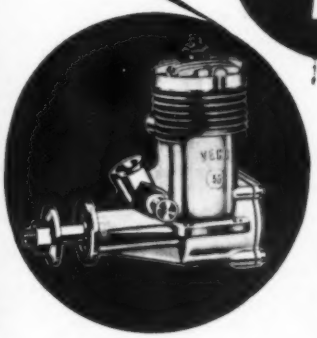


Designed to maneuver like a hellion, the all-new Veco Renegade combat plane out-fights, out-speeds and out-performs all competitors! Rugged durability and simplicity of construction make it a favorite with all modellers. Pre-fabbed kit . . .

list price **$3.50**

Renegade Specifications

Overall length	23½"
Wing span	33"
Wing chord	11"
Wing area	330 sq. in.
Engine mounting	Upright



A Sure-Kill Combination

Combat experts have been aware of the need for a new fuel system capable of meeting the demands imposed by today's highly maneuverable combat planes. They know that suction fuel systems, which permit fuel to be pulled away from the engine during certain severe maneuvers, are responsible for most speed-killing engine sag—frequently blamed on the engine itself.

Veco's answer is an entirely new pressure injection fuel system that forces fuel under pressure to the engine regardless of plane attitude. With constant fuel supply, engine sag and loss of rpms is eliminated. Power is instantly available to give you the edge you need for sure kills in competition.

For Fighting Ace combat flying the champion-making combination is the new Veco Renegade equipped with a Veco Combat 35 and Veco Pressure Fuel Tank. They're made to go together!

Veco .35C *Combat Engine*

A real package of power that's specially built to take the gruelling punishment of combat and rat-race flying. A new extra heavy heat treated crankshaft absorbs the strains of violent maneuvers. Improved high speed porting gives top rpms and thrust. Special fitting taps crankcase pressure for use with pressure fuel tank.

list price **$16.95**

Convert your present *Veco Engine*

For Pressure Fuel Injection
Any 100 Series .19, .29 or .35 Veco engine can be converted to pressure fuel injection with a Veco pressure fitting. Easy to install.

list price **50¢**

Veco Pressure *Injection Fuel Tank*

Here's the first true pressure fuel tank especially designed for combat and stunt needs. New longitudinal baffle, developed after more than two years of testing, keeps fuel under pressure to the engine at all times. Power failure and engine sag due to surging during maneuvers is completely eliminated. Available in 5 sizes, from 2 oz. to 4 oz. *list price* **$1.45**

A proven winner

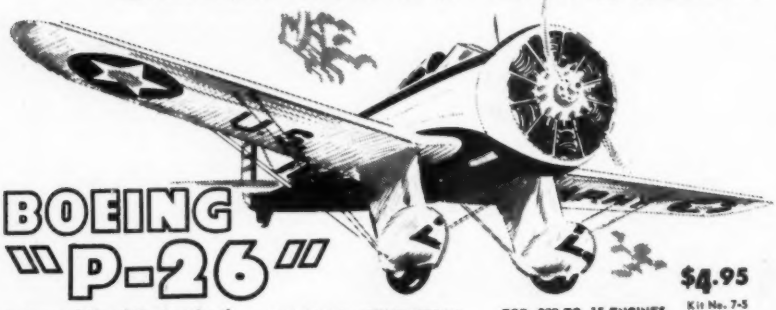
Designed by John Barr of Los Angeles, and formerly known as "The Butterfly," the Veco Renegade has been contest proven. It is one of the top combat winners in Southern California.

Ask to see the Renegade at your hobby dealers!

VECO PRODUCTS CORP., BURBANK, CALIFORNIA • Veco Products are sold by leading hobby dealers everywhere

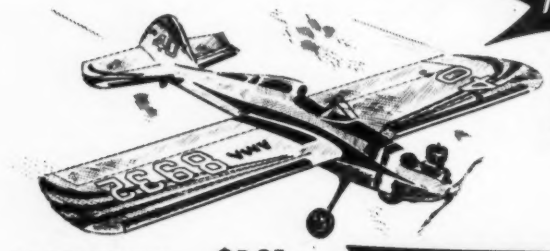
CORRECTION:

IN THE FEBRUARY ISSUE ... These two new models had Engine size and Wingspan listed incorrectly. Corrected copy appears below.



BOEING "P-26"

• Formed Metal Engine Cowl — 3/4" SCALE – 21" WINGSPAN — FOR .099 TO .15 ENGINES — $4.95 Kit No. 7-5



Berkeley's

MARK "40"

ZILCH

FOR .15 TO .25 ENGINES — 40" WINGSPAN — $4.95 Kit No. 12-7

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA., West Hempstead, N. Y. Please include 25¢ packing & postage

Since 1938—Leaders in Creative Model Kits

BERKELEY MODELS INC.

WEST HEMPSTEAD, NEW YORK, U.S.A.

ADVERTISING INDEX—MARCH, 1959

Ace Products	42
Ace Radio Control	67
Ambroid Co., Inc.	57
American Telasco, Ltd.	46
America's Hobby Center	6, 7, 8
Annco Engineering Co.	34
Austin-Craft Co.	43
Authentic Aircraft Models	38
Berkeley Models, Inc.	66, 68, 69, 70, 71, 72, 4th cover
Bonner Specialties	48
CG Electronics Corp.	2, 39
Citizen-Ship Radio Corp.	32
Comet Model Hobbycraft, Inc.	1
Competition Models, Inc.	34
L. M. Cox Mfg. Co., Inc.	3
Craft, Model & Hobby Industry	34, 66
Dealers Hobby Supply	48
The deBolt Model Engineering Co.	64
ESSCO	50
Enterprise Model Aircraft Co.	42, 43
Forster-Appelt Mfg. Co., Inc.	39
Fox Manufacturing Co., Inc.	3rd cover
Carl Goldberg Models, Inc.	51
Grish Bros.	2
Paul K. Guillow, Inc.	53
Gull Model Airplane Co.	2, 62
Herkimer Tool & Model Works	5
Jaico Products	34
K & B Allyn Co.	2nd cover
Kap-Pak Products, Inc.	64
Lafayette Radio	47
Lee's Hobby Supplies	33
Lindberg Products, Inc.	59
Minnesota Engine Works, Inc.	63
Min-X Radio	52
Modelcraft	56
Monogram Models, Inc.	49
Octura Models	63
Pactra Chemical Co., Inc.	59
Pan American World Airways System	54
Perfect Products Co.	34, 39, 66
Polk's Model Craft Hobbies	38, 61
Scientific Model Airplane Co.	40, 41
Sig Mfg. Co.	63
Sterling Models	54, 55
Stewart/Lundahl Co.	39
Sullivan Products	34
The Testor Corporation	36, 37
Top Flite Models, Inc.	44, 45
Veco Products Corp.	65
World Engines	48
X-Acto, Inc.	55

YOU'RE ALWAYS IN GOOD HANDS

A WORLD OF SATISFACTION IN YOUR OWN HANDS — HOBBY CRAFT — APPROVED DEALER

When You Buy At The Store Displaying This Dealer Emblem

(Dealer inquiries invited)

Write To:

CRAFT, MODEL & HOBBY INDUSTRY

30 East 29th St. New York 16, N.Y.

NEW From **PERFECT**

54 FT. SPOOLED 1/2A DACRON CONTROL LINE

Extra footage for tying. High strength. Flight tested for 11 lb. pull. Pre-stretched for maximum control.

25c

Also Look For Perfect Fuel Line, Fuel Tanks, Fuel Pumps, Wheels, Parts

were the Aristo MOPA and our MOPA by ESSCO. The latter was equipped with a vibrator supply and a 2 volt cell and was connected to the car battery. Both of these transmitters gave in excess of 1500 foot ground range. Actually, any reliable transmitters are OK. For the CG tone receiver we used a CG T-12 transmitter, a Brameo single channel tone unit with a keying cable so that it could be placed on a car roof, and two MOPA tone units built especially for the project. Long experience with transmitters indicated that standard 1.5 volt blocks and 67½ volt batteries would suffice. An extra set of batteries was on hand for each transmitter. The night before the attempt, several hours were spent in making sure all transmitters would operate the receivers at maximum range. You can't retune the receiver in the air.

The auxiliary devices such as the Mighty Midget rewind for the main escapement and the Citizenship SN escapement for spoiler control were amply taken care of by the extra two VO-500 cells. These are the only two items, with their batteries that we did not checkout. However, Norm Rosenstock ran actual bench tests which gave results equal to our paper work figures.

One other thing to take into consideration concerning the batteries, is that with Silvercells the initial voltage is about 2 volts per cell instead of 1.5 volts. The VO cells give 1.3 volts per cell. For actuator use the 2-volt Silvercells do not overload (two in series, 4v) any 3 volt device. Two VO cells in series, for 2.6v, are also ample for 3v devices since there is practically no voltage drop when the cells are operated within their capacity.

MAN at Work

(*Continued from page* 4)

Despite the drag of a great war, the lack of engines and balsa, and the absence of thousands of modelers, the U.S. hobbyists quickly evolved speed, stunt, and flying scale. At Olathe, in 1948, FAST Club representatives Storey and McBrayer demonstrated team racers. Since then we've gone into combat, rat racing, and oddball stuff. We may have started the models-on-wires business, but the rest of the world has changed displacements, wire sizes and lengths, and we have to like it. Radio is popular in the US, but the International event itself, like Nordic, is the work of many hands.

The trouble with International Rules, unfortunately, is the impractical details. In free flight, for instance, there is an area loading rule, giving minimum and maximum loadings per square unit of wing and stabilizer area combined, this based on projected area. Processing alone means that such rules are for the few, the contest elite, and not the many. Popular competitive modeling compels simpler rules, devoid of tricky area computations and the like which slow processing lines to a standstill. Shortly after the war, free flight attained such proportions in the US that people stood in line all day, lucky to get in one flight. The abolishment of cross section, then area loading rules was a boon and no one ever regretted the demise of the ancient rites of the slide rule and tape measure. In fact you can't prove that the models fly any better or worse. Higher performance is due to the glow engine.

It is clearly impractical to bend AMA rules, designed for mass competition, further in the direction of FAI, at least for the present. The present compromise between FAI and AMA rules in free flight is a skillful one, suited to all purposes. We hope it makes everybody happy.

See These Dealers for Ace R/C

Alabama. Huntsville
HUNTSVILLE HOBBY SHOP
2100 Triana Blvd., S. W.

California. Carmichael
HOBBY CORRAL
2930 Fair Oaks Blvd.

California. Hollywood
BING'S GENERAL HOBBIES
7621 Sunset at Stanley

California. Los Angeles
COLONEL BOB'S
3707-1/2 West Pico Blvd.

California. Lynwood
DUNHAM'S
10417 Long Beach Blvd.

California. Montebello
VICTORY HOBBY SHOP
1411 West Whittier Blvd.

California. Oakland
ROOT'S HOBBY HUT
6036 Telegraph

California. Riverside
DICK'S HOBBY & LEATHER
6574 Magnolia-Hillmer's

California. San Leandro
STEVE'S HOBBY CORNER
596 East 14th Street

California. Whittier
JACK'S HOBBYCRAFTS
223 West Philadelphia

Canada. Calgary. Alberta
UNIVERSAL HOBBY SUPPLY
603 - 8th Avenue West

Canada. Fort Erie. Ontario
SPEIDEL EQUIPMENT
P. O. Box 1019 - Station B

Canada. London. Ontario
THOMPSON'S HOBBY
& CRAFT SHOP
347 Talbot (South of King)

Colorado. Denver
TOM THUMB HOBBY CENTER
7030 East Colfax

Connecticut. New Britain
HOBBY CENTER
11 Franklin Square

Illinois. Barrington
LANGE'S BIKE SHOP
120-A West Main Street

Illinois. Chicago
HOBBY HOUSE
5516 South Damen Avenue

Illinois. East St. Louis
EAST SIDE HOBBY SHOP
2303 State Street

Illinois. Wilmington
HURSH HOBBIES
108 South Water

Indiana. Michigan City
VAIL'S HOBBY SHOP
429 Franklin Street

Iowa. Des Moines
HIGHLAND HOBBY SHOP
1061 - 6th Avenue

Louisiana. New Orleans
HUB HOBBY SHOP
2618 South Broad Street

Maryland. Baltimore
LLOYD'S
HOBBY HEADQUARTERS
2201 North Charles Street

Massachusetts. Cambridge
CROSBY'S HOBBY CENTRE
1704-A Massachusetts Avenue

Massachusetts. Mattapan
TOY & GARDEN CENTER
542 River Street

Michigan. Detroit
BOULLARD HOBBIES
13936 East Warren Avenue

Michigan. Detroit
JOE'S HOBBY CENTER
9810 Wyoming Avenue

Michigan. Flint
FLINN'S HOBBY
& MODEL SUPPLY
3101 Corunna Street

Minnesota. Minneapolis
WOODCRAFT HOBBY STORES
903 West Lake Street

Missouri. St. Louis
CHARLIE'S HOBBY HOUSE, INC.
4624 Macklind Avenue

New Mexico. Roswell
FRANK'S MODEL & HOBBY SHOP
813 North Washington

New Jersey. Parsippany
RICH'S HOBBYTOWNE
U. S. Route #46

New Jersey. Red Bank
HOBBY HEADQUARTERS
62 White Street

New York. Buffalo
SPEIDEL EQUIPMENT
44 Comet Avenue

New York. Bronx
BROWN'S HOBBY CENTER
6031 Broadway

New York. East Meadow, L. I.
LEE'S HOBBY SUPPLIES, INC.
2072 Front Street

Ohio. Attica
J & J HOBBYHOUSE
122 North Main

Ohio. Cleveland
GENE'S GOLF & HOBBY CENTER
14506 St. Clair Avenue

Ohio. Cleveland
RED'S HOBBYCRAFT
7804 St. Clair Avenue

Ohio. Dayton
HOBBY HAVEN
2025 Salem Avenue and
2281 Gettysburg Street

Oregon. Portland
FLEGEL HOBBY SERVICE
4503 North Interstate

Pennsylvania. Allentown
BLOCH'S PAINTS & HOBBIES
22 North 8th Street

Pennsylvania. Fogelsville
DON MOHR'S HOBBYLAND
Junction Routes 22 & 100

Pennsylvania. Philadelphia
RICHARD FRANCIS HOBBIES
5815 Woodland Avenue

Pennsylvania. Upper Darby
TODD'S
7036 West Garrett Road

Texas. Amarillo
AMARILLO HOBBY HOUSE
118 East 7th Street

Virginia. Richmond
THE HOBBY CENTER
3029 West Cary Street

Washington. Seattle
GREENWOOD HOBBY SHOP
209 North 85th Street

Washington. Seattle
HOBBY CRAFT
The Bon Marche

Wisconsin. Milwaukee
ACE HOBBY SHOP
4504 West Burleigh

Wisconsin. Racine
MARCY'S HOBBY SHOP
14th & Washington Avenue

Wisconsin. Waukesha
THE HOBBY HORSE
River Park Center

Wyoming. Casper
CASPER BATTERY
& ELECTRIC CO.
119 East Fifth Street

NOW - ALL-TRANSISTOR R/C KIT by Ace

Designer Approved All-Transistor Receiver Kit

The TR 4.5, an all transistor 27-1/4 mc. receiver, is sure to appeal to the advanced radio control enthusiast. Its many fine features, including reliable operation over a wide temperature range, high current change, ultra economical battery life, is sure to win many friends.

To assist the advanced builder in making his unit, a complete parts package is being made available along with instructions.

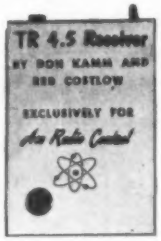
All required components have been assembled and the total price is less than if the parts were purchased individually. The package includes three special transformers, a special Gem relay, four transistors, including a specially selected and tested A01 to insure operation at 27-1/4 megacycles.

All coils are completely wound. A special ferrite core RFC is used to insure small size. Allen-Bradley resistors and Goodall capacitors are used throughout.

A special light weight aluminated case is also supplied to make a compact unit measuring 2x2-7/8x3/4 in. Weight is slightly over two ounces.

The units requires only 4-1/2 volts of battery and idles at 2 mils, which upon receipt of modulated signal of 400 cycles at 100% rises to 35 to 40 mils for really reliable operation.

Temperature checked from 130 down to 20 degrees and operation is reliable throughout this range. The TR 4.5 is not recommended for the beginner or the R/C fan with limited radio experience.



It is available only from Ace Radio by special arrangements with the designers Don Kamm and Red Costlow. Another Ace exclusive designer approved kit. Complete parts package, nothing else to buy except batteries, only. . **$22.95**

OTHER DESIGNER APPROVED RC KITS

For several years Ace has worked with top R/C designers to produce exclusive designer-approved control kits, in which the designers themselves have selected and approved components used. Here are some ACE R/C exclusives:

WORTH Simpl-Simul Pulser

Now - proportional rudder and elevator with the Simpl-Simul by John Worth. Converts single channel CW or audio receiver and transmitter to give true stick-type control. Receiver must be capable of following 10 cps. Ace Simpl-Simul kits approved by John Worth are complete except for batteries.

Only **$21.95**

GOOD TTPW Dual Units

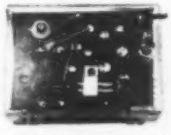
Ultimate in R/C fun, the WAG Dual system has stick-type control. Nearest thing to actually flying. Smooth proportional control of rudder and elevator and fail-safe operation of motor control. Dr. Walter A. Good personally selected components used.

Complete receiver kit with all tubes and relays. **$39.95**

Complete transmitter kit with tubes, xtal, cabinet. **$74.95**

MARCY Single & Multi Kits

Fabulous new audio system by Marcy Inkmann. Begin with single channel equipment and expand up to six without obsoleting any equipment along the way. Simple filters, instead of expensive toroids, hold cost down. Filters have band width of at least 200 cps, preventing transmitter drift and eliminating adjustment worries.



Single channel MarcyTone Receiver measures 2x2-7/8x1, weighs under 3 ounces. Includes tube, three transistors, relay, filter, all capacitors and resistors. Only. **$17.95**

MarcyTone Transmitter contains two 3A5 tubes - MOPA RF and multi-vibrator audio; Variable Frequency Oscillator, permits selection of 1700 to 7000 cps; slight modification allows unit to be used with other single channel audio receivers; 100% modulation; aluminited case 3x5-1/2x8 inches; expandable merely by plugging in control box; complete with tubes, 13 mc crystal, resistors, capacitors - everything required except batteries and 3 foot section music wire antenna. . **$18.95**

6 Channel MarcyTone Receiver - Basic RF and amplifier unit as well as 6 filters, 6 relays, 8 transistors and all other required components. Weighs under 10 ounces **$53.95**

6 Channel Control Box, converts transmitter above. **$18.95**

FLASH
Send for New Free Catalog - 59A

Ace R/C East
3029 W. CARY ST., RICHMOND, VA.

Ace Radio Control
BOX 301 HIGGINSVILLE, MO.

Ace R/C West
BOX 18 CARMICHAEL, CALIF.

Berkeley

AMERICA'S NUMBER ONE LINE OF

OPERATING MODELS

KING SIZE SCALE

Radio-Control - Free-Flight - Controline

$5.95

Flaps, Elevator, Nose Wheel may be actuated

Piper "TRI-PACER"

For .035 to .15 Engines - 44" Wingspan

Flaps, Rudder, Elevator and Nose Wheel actuate

Radio-Control Free-Flight Controline

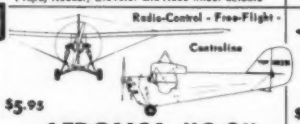
$5.95

Formed Metal Ring Cowl

De Havilland "BEAVER"

For .035 to .15 Engines - 48" Wingspan

High Aspect Ratio Wing - Well Proportioned



Radio-Control - Free-Flight - Controline

$5.95

AERONCA "C-3"

.09 Engines (R.C.) .074 (Free-Flight) .15 (Controline)

Rudder and Optional Elevator Control. Easy to build.

Radio-Control Free-Flight Controline

$9.95

"WACO CABIN"

For .14 to .29 Engines - 52" Wingspan

Ideal Biplane for multiple R.C. installations

GIANT SIZE SCALE

Radio-Control - Free-Flight - Controline

$16.95

"SUPER NAVION"

For .23 to .65 Engines - 68" Wingspan

Stable low wing design, large roomy cabin for R.C.

Radio-Control - Free-Flight - Controline

Variable Camber Wing

$4.95

"HELIOPLANE"

39" Wingspan For .049 to .14 Engines

High aspect ratio wing, 3 position flaps, fine flyer

$8.95

Radio-Control - Free-Flight - Controline

CESSNA "172"

For .09 to .19 Engines - 54" Wingspan

A beautiful kit - fine detail, decals. Easy to build

Radio-Control - Free-Flight - Controline

$7.95

Forney "AIRCOUPE"

For .074 to .29 Engines - 45" Wingspan

Stable low wing Beautiful in detail - Fine Flyer

Radio-Control - Free-Flight - Controline

$10.95

PIPER CUB "J-3"

For .15 to .25 Engines - 71" Wingspan

A rugged proven design. Large size ideal for R.C.

FOR RADIO CONTROL PYLON RACING:

48" Wingspan

$19.95

"BUSTER"

For .15 to .35 Engines

A thrilling new form of Radio Control - Controline Details on plan

Radio-Control - Free-Flight - Controline

$8.95

Piper COMMANCHE

For .065 to .15 Engines (R.C.) .09 to .19 (Controline)

Ideal for R.C. experimentation, Flaps, Ailerons

Radio-Control - Free-Flight

$14.95

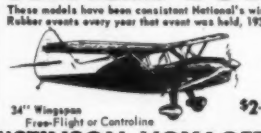
CESSNA "170"

For .25 to .35 Engines - 72" Wingspan

Perfect scale, stable, rugged, good wind penetration

CHAMPIONSHIP FLYING SCALE 1/2A

These models have been consistent National's winners in 1/2A and Rubber events every year that event was held, 1938 through 1957 . . . .



34" Wingspan Free-Flight or Controline

$2.50

"STINSON VOYAGER"

.049 Engines Free-Flight .049 to .099 Controline

Equipped with Wing Slots. Authentic in Detail

$2.95

Free-Flight or Controline 35" Wingspan

PIPER "SUPER-CRUISER"

.049 Engines Free-Flight .049 to .099 Controline

Excellent flyer Nationals winning design

$2.50

Free-Flight or Controline

33-1/2" Wingspan

STINSON "SENTINEL"

.049 Engines Free-Flight .049 to .099 Controline

Consistant Nationals Winner - Easy to Build

DUCTED FAN MODELS

DUCTED FAN DESIGN

Gear not included

$4.95

Douglas "SKY-RAY"

For "1/2A" Engines - 25" Wingspan

Ideal for "Pull-Starter" Engines - Flies out of sight

Free-Flight or Controline

35" Wingspan

$3.95

"WACO CABIN"

.049 Engines Free-Flight .049 to .099 Controline

A beautiful Biplane - Easy to Build and Fly

Free-Flight or Controline

$2.50

34" Wingspan

"AERONCA SEDAN"

.049 Engines Free-Flight .049 to .099 Controline

Plans show pontoon details - Excellent Flyer

Free-Flight or Controline

$2.50

36-1/2" Wingspan

FAIRCHILD "24" RANCHER

.049 Engines Free-Flight .049 to .099 Controline

Strong - Reliable - Detailed, Fine Flyer

DUCTED FAN

Gear not included

Lockheed "T-33A"

$4.95

For "1/2A" Engines - 29" Wingspan

Fine Ducted Fan Design - Torque-Free Propulsion

Free-Flight or Controline

$2.95

36" Wingspan

Cessna "BIRD DOG"

.049 Engines Free-Flight .049 to .099 Controline

This famous liaisian plane is a fine flyer, fun to build.

Free-Flight or Controline

35" Wingspan

$2.95

CESSNA "180"

.049 Engines Free-Flight .049 to .099 Controline

Authentically Detailed - East to Build and Fly

Free-Flight or Controline

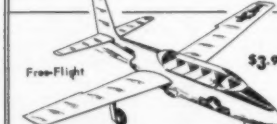
$2.95

35" Wingspan

"SUPER CADET"

.049 Engines Free-Flight .049 to .099 Controline

Many times a Nationals Winner, easy to build.



Free-Flight

$3.95

"TEMCO" 150

Jetex "Jetmaster" or "Scorpion" Engines - 30" Wing

A fine flying reaction engine design - Easy to build

Free-Flight or Controline

$2.50

36" Wingspan

AERONCA "C-3"

.049 Engines Free-Flight .049 to .099 Controline

Very easy to assemble - An unusual model design

$3.50

37-1/2" Wingspan

Free-Flight or Controline

"BUHL-PUP"

.049 Engines Free-Flight .049 to .099 Controline

Famous early light plane - Fine flying scale design

$4.95

DUCTED FAN Gear not included

Vought "CRUSADER"

For "1/2A" Engines - 27" Wingspan 33-3/4" Length

Formed Plastic Parts - Light in Weight, Flies Well

COLONIAL "SKIMMER"

Free-Flight or Controline

.049 Engines Free-Flight

.049 to .099 Controline

$3.50

Easy to build and fly. Takes off water beautifully.

33-1/2" Wingspan

Since 1933 Leader in Creative Model Art

BERKELEY MODELS INC.

WEST HEMPSTEAD, NEW YORK, U.S.A.

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA., West Hemostead, N. Y. Please include 25¢ packing & postage.

CONTEST

Free-Flight

RAMROD "250"

$2.95

For "1/2A" Engines - 40-1/2" Wingspan

Trims for Contest flying in three flights or less.

Free-Flight

RAMROD "600"

For "A-B" Engines - 63" Wingspan 600 sq. in. Area

$6.95

Trims for Contest flying in three flights or less

PAA-Load

$4.95

Blanchard's

"INTERNATIONAL"

For .09 to .19 Engines - 71" Wingspan

Nationals winning design - Easy to build and trim

RUBBER

$3.95

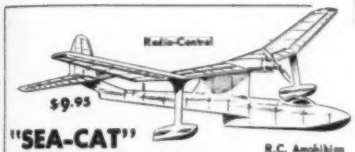
(For Rubber Power)

"SUPER-CLOUD"

51" Wingspan - 210 sq. in. Area - 8.113 Oz. Total Wgt.

Folding Prop Hardware - Milled Prop Blank

SEAPLANES



Radio-Control

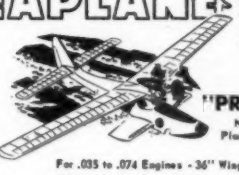
$9.95

"SEA-CAT"

For .15 to .25 Engines - 68" Wingspan

R.C. Amphibian Flying Boat

Long Planing Hull Design - Beutiful Performance



Free-Flight

½A

"PRIVATEER"

N.A.C.A. Long Planing Hull Design

For .035 to .074 Engines - 36" Wingspan

$2.95

Takes off water in 15 foot run. Easy to build

Radio-Control or Free-Flight

1440 sq. in Wing Area

$19.95

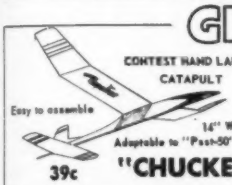
"CUSTOM PRIVATEER" Long Planing Hull Flying Boat

For .45 to 1.20 Engines - 116" Wingspan

N.A.C.A.

Takes off water with R.C. equipment. Huge cabin area

GLIDERS



CONTEST HAND LAUNCH CATAPULT

Easy to assemble

14" Wingspan

Adaptable to "Past-50" Power

39c

"CHUCKER"

Highly Pre-Fabricated - Trim, Sand and Assemble

$2.50

"SINBAD THE SAILOR"

50" Wingspan - Towline Launched

High performance towline - Easy to build

PAY-LOAD

$1.25

"SINBAD 40"

40" Wingspan -

Towline Launched high performance Glider

Free-Flight - Pay-Load

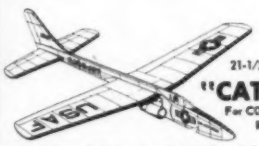
$2.95

"PAYEE"

For .049 Engines - 50" Wingspan

An improved version of Nationals winning design

READY-TO-FLY



89c

21-1/2" Overall Length

"CAT-O-JET"

For CO-2 Cartridge Power - Rubber Catapul

For thrilling climb, launch with catapult included or use Missile-Launcher. Missile-Launcher will fire cartridge as it catapults.

Nothing to Build - It's Ready to Fly

"SUPER YANK"

$1.95

For up to .049 Engines

Metal Firewall Pre-Drilled for most engines.

Fast climbing - soaring glide

The new Cox "Poo-Woo" is the ideal engine for this model

"BABY YANK"

For .020 Engines - Ready to Fly ... Thrilling Performance

These models are capable of "Out-Of-Sight" flights

$1.50

$1.50

"SWISHER"

Complete with "Past-50" Engine

Ready to Fly Reaction Engine

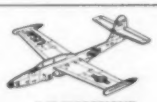
Slip the wing and tail in place and the sky is yours.

$1.95

3 Scale "SIL-O-JETS"

F-94 "STARFIRE"

F-9-F "PANTHER"



F-8U "SCORPION"

All Three Ready to Fly with One Interchangable "PSST-50" Engine

Capable of out of sight flights - thrilling climb, soaring glide

RADIO CONTROL

Radio-Control Free-Flight

Pay-Load

$4.95

BOOTSTRAPS "A-RC"

For .09 to .14 Engines - 54" Wingspan

Clip in prone engine mount and R.C. chassis, fine flyer

$14.95

For R.C. experimentation.

"SUPER BUCCANEER"

.60 to 1.20 Engines - 7-1/2 Foot Wingspan

Eiffel section, 8.3 sq. feet area

Cabin Doors for R.C. access.

Radio-Control

$8.95

"ROYAL RUDDERBUG"

For .14 to .23 Engines - 62" Wingspan

Cabin doors for R.C. access. Proven in contests

1st, 2nd, 3rd, 4th in Multi - 1958 Nationals - 3rd in Flyon Racing

An exceptional kit.

Flutter-proof Ailerons - Steerable Tailwheel

$15.95

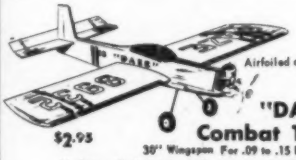
Radio-Control or Controline

Aileron Control

"ASTRO-HOG"

For .35 Engines (R.C.) .45 to .99 (Controline) - 72" Wingspan - Length 50"

COMBAT - TRAINERS



Airfoiled and Hollowed

"DAZE" Combat Trainer

$2.95

30" Wingspan For .09 to .15 Engines -

Machine milled all balsa hollow wings - Pre-Fabricated

COMBAT TRAINER

For .049 to .075 Engines - 19" Wingspan

$1.95

JUNIOR "PUDDLE-JUMPER"

Highly pre-fabricated - Ready to Assemble

COMBAT

Designed for Rapid Assembly

$3.95

Airfoiled and Hollowed

"KNIGHT"

For .19 to .36 Engines - 36" Wingspan

"Machine-Milled Balsa

"Jig-Plan" for rapid wing assembly - Fine Flyer

MISSILES

"REGULUS" II

$2.95

"MODEL MISSLE GIFT KIT"

"X-16"

Two-Stage Missle

"BOMARC"

All three Missles in one box - including "Past-50" Engine

Since 1933 Leader in Creative Model Kits

BERKELEY MODELS INC.

WEST HEMPSTEAD NEW YORK U.S.A.

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA, West Hempstead, N.Y. Please include 25¢ packing & postage

Berkeley's FOR THE FINEST IN ACTION MODELS:

SEMI-SCALE STUNT

Grumman "GUARDIAN"
For .19 to .36 Engines - 53" Wingspan
Designed for Stunt and Navy Carrier

Curtis P-40 "WARHAWK"
For .19 to .35 Engines - 45" Wingspan
Metal Cowl - Stunt Flaps - Flying Tiger Decals

SPEED

"SUPER-SQUIRT"
For "Dyna-Jet" Engines - 21" Wingspan
Flies in 160 to 180 m.p.h. range

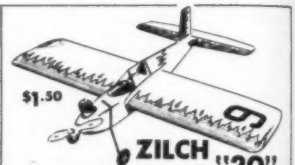
For .19 to .29 Engines - 12-1/2" Wingspan
Carved and Hollowed Fuselage - Bonnet
"SUPER WHIRLAWAY" A-B

STUNT

"MARK-40" ZILCH
For .15 to .25 Engines - 40" Wingspan
Highly Pre-Fabricated - Assembles Rapidly

"MARK-30" ZILCH
For .09 to .15 Engines - 30" Wingspan
Easy to build, highly Pre-Fabricated

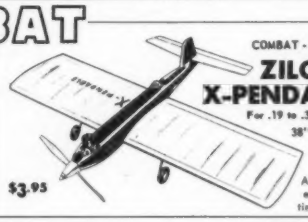
"MINI-ZILCH"
For .020 to .051 Engines - 20" Wingspan
Easy to build Stunt Controline for small engines



ZILCH "20"
For up to .074 Engines - 20-1/2" Wingspan
Especially designed for rapid assembly, small engines

COMBAT

"ORBIT ACE"
For .19 to .35 Engines - 425 sq. in. area 40-1/2" Wingspan
Balanced Elevators - Wing tips washed out to prevent tip stall



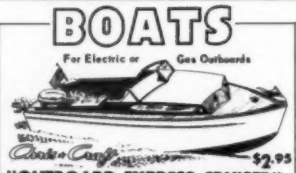
ZILCH X-PENDABLE"
For .19 to .35 Engines - 38" Wingspan
Assembles fast, easy for more time in the air.

TEAM RACER

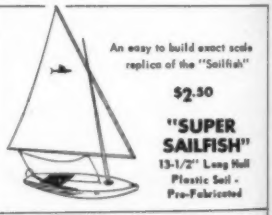
"LANCER"
For .19 to .35 Engines - 39-1/2" Wingspan
A proven contest winning design.
Easy to assemble

BOATS

"16" CUSTOM RUNABOUT
16" Long - 6-3/8" Beam - Outboard Gas or Electric



"OUTBOARD EXPRESS CRUISER"
Formed Plastic Hull and Deck Outboard Engines
Special Plastic Cement - Cast Deck Hardware included



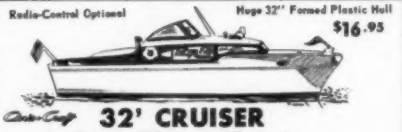
"RIVIERA RUNABOUT"
12" Long - 4-1/2" Beam For .035 to .099 Engines or Small Electric Motors

AIR-SEA RESCUE BOAT
For .09 to .19 Engines and/or two Electric Motors 30" Length Overall - 8" Beam
Easy to assemble balsa hull structure, Mahogany planked.

Simple to assemble - No compound curvatures
Mahogany Planked Race Boat

SEA BIRD "14"
For .049 to .075 Engines - 14" Length

Controlled by a mechanical automatic pilot which can make a boat to "come-about" and return to shore. Available in three sizes.
Well designed for high performance -



32' CRUISER
For up to a .29 Engine or two Electric Motors
Mahogany cabin trim - Cast Deck Hardware - Decals

SEA BIRD "RC-28"
For .09 to .35 Engines - 28" Length
Mahogany Veneer Planking
Operate with or without R.C. Free-Running or Tethered

"COBRA" $9.95
For .09 to .35 Engines 31-1/2" Long
Mahogany Planked Scale Replica - R.C. Details

"22" EXPRESS CRUISER
Single or Double Outboard Gas or Electric 22" Long
Large enough for Radio Control if desired

"EXPRESS CRUISER"
For .045 to .099 Engines - or small Electric Motor
Marine and Deck Hardware included - Easy to build.

42' CONSTELLATION
For .09 to .35 Engines or Two Electric Motors
Ideal for Radio-Control - Big, highly detailed, fine sailer.

5/8" SCALE MODELS

Berkeley's

$1.95

Piper "TRI-PACER"

For .020 Engines - 18-1/4" Wingspan
For Free-Flight or "Manoline"
Plastic Cowl - Authentic Decals

$1.95

CESSNA "172"

For .020 Engines - 22-1/2" Wingspan
Free-Flight or "Manoline"
Plastic Cowl - Authentic Decals - A Fine Flyer

$1.95

Cessna "BIRD DOG"

For .020 Engines - 22-1/2" Wingspan
Free-Flight or "Manoline"
Plastic Cowl - Authentic Decals

$1.95

Forney "AIRCOUPE"

For .020 Engines - 18-3/4" Wingspan
Free-Flight or "Manoline"
Plastic Cowl - Authentic Decals

Free-Flight or "Manoline"

$1.95

PIPER CUB "J-3"

For .020 Engines - 22-1/2" Wingspan
Plastic Cowl - Authentic Decals

For Free-Flight or "Manoline"

$1.95

P-40 "WARHAWK"

For .020 Engines - 23" Wingspan
Flying Tiger Decals - Plastic Cowl, Spinner,

For Reaction type Engines -

North American Navy Jet Trainer

$3.95

"T-2J-1" Trainer

PSST "Double-50" Engine Included 22-1/2" Wingspan
Free-Flight or "Manoline" - Formed Canopy, Parts

DUCTED FAN JET

Free-Flight or "Manoline"

$2.95

25" Length

Grumman Navy

F-11-1F "TIGER"

For .020 Engines Ducted Fan Jet - Impeller Included
Authentic Decals - Formed Canopy - Detailed Plans

DELUXE SCALE - CARVED FUSELAGE

Controliners

Controline

$8.95

North American

P-51 "MUSTANG"

For .15 to .29 Engines - 28" Wingspan
Carved and Hollowed Fuselage - Sheet Planked Wings
Authentic Decals Canopy - Canopy

Controline

$8.95

Douglas

SBD "DAUNTLESS"

.14 to .36 Engines - 31" Wingspan
Carved and Hollowed Fuselage - Metal Cowl - Canopy

Controline

$10.95

P-38 "LIGHTNING"

Two .14 to .29 Engines - 41" Wingspan - 3/4" Scale
Carved and Hollowed Fuselages, Pod

Controline

$14.95

North American

B-25 "MITCHELL"

For Two .09 to .19 Engines - 42" Wingspan
Carved Fuselage, Nacelles, Metal Cowls
Retractable Shock Mounted Gear, Operating Flaps

Controline

$8.95

North American

AJ-1 "SAVAGE"

Two .045 to .099 Engines
& Reaction Engine - 27" Wingspan
Carved & Hollowed Fuselage, Nacelles, Metal Cowls

Boeing

B-17G "FLYING FORTRESS"

Greatest Multi-Engine Controliner . . .

For Two .09 to .15 Engines
(& Two Dummy Engines)
or Four .09 to .15 Engines

52" Wingspan - 37-1/2" Overall - 1/2" Scale

Sheet Planked Wing, Tail - Authentic Decals
Metal Ring Cowls - Carved and Hollowed Fuselage -
Molded Canopies - Formed Wire Parts - Operating Wing Flaps

$19.95

Controline

$12.95

"AERO-COMMANDER"

For Two .049 to .099 Engines - 33" Wingspan
Carved and Hollowed Fuselage, Nacelles

Controline

$5.95

Grumman

F-8-F "BEARCAT"

For .09 to .19 Engines - 26-1/4" Wingspan
Rounded Edge Planking - Fine Flyer

MILITARY TRAINERS - FIGHTERS

Controline

$6.95

North American

"T-28" Trainer

For .23 to .36 Engines - 30" Wingspan
Metal Cowl - Step Keel Alignment - Tricycle Gear

Controline

$4.95

North American

AT-6 "TEXAN"

For .19 to .33 Engines - 31" Wingspan
Metal Cowl Embossed Canopy - Army, Navy Decals

Controline

$6.95

Beech

T-34 "MENTOR"

For .19 to .29 Engines - 33" Wingspan
Air Force Trainer - Excellent Flyer, Easy to build

$5.95

Republic Controline

P-47 "THUNDERBOLT"

For .19 to .29 Engines - 32-3/4" Wingspan
Rounded Edge Planking, Flaps, Ailerons

HISTORIC AIRPLANES

Controline

$4.95

Curtiss

F-11-C2 "GOSHAWK"

For .074 to .15 Engines - 23-1/4" Wingspan
Metal Wing Struts Plastic Dummy Engine

Controline

$4.95

P-6E "CURTIS HAWK"

For .09 to .15 Engines - 24" Wingspan
Metal Cowl - Metal Wheel Pants - Colorful Decals

$5.95

Controline

Curtiss

SBC-3 "HELLDIVER"

For .09 to .29 Engines - 25-1/2" Wingspan
Metal Ring Cowl -
Operating Wing Flaps Rounded Edge Planking

Controline

$5.95

Curtiss A-12 **"SHRIKE"**

For .09 to .19 Engines - 33" Wingspan
Metal Ring Cowl - Rounded Edge Planking - Decals

PERSONAL AIRCRAFT

Controline

$5.95

"SHOESTRING"

For .14 to .36 Engines - 28" Wingspan
Spinner - Wheel Pants - Landing Gear

Controline

$5.95

"PITT'S SPECIAL"

For .19 to .33 Engines - 25" Wingspan
Metal Cowl - Metal Wheel Pants - Decal Flare Design

Controline

$5.95

"MINNOW" Cosmic Wind

For .09 to .36 Engines - 28" Wingspan
Metal Cowls - Spinner - Wheel Pants - Step Keel

Metal Cowl

$4.95

Boeing

"P-26"

For .09 to .15 Engines - 21" Wingspan Controline

Controline

$5.95

CESSNA "195"

For .19 to .36 Engines - 36" Wingspan
Metal Cowl - Step Keel Fuselage Alignment

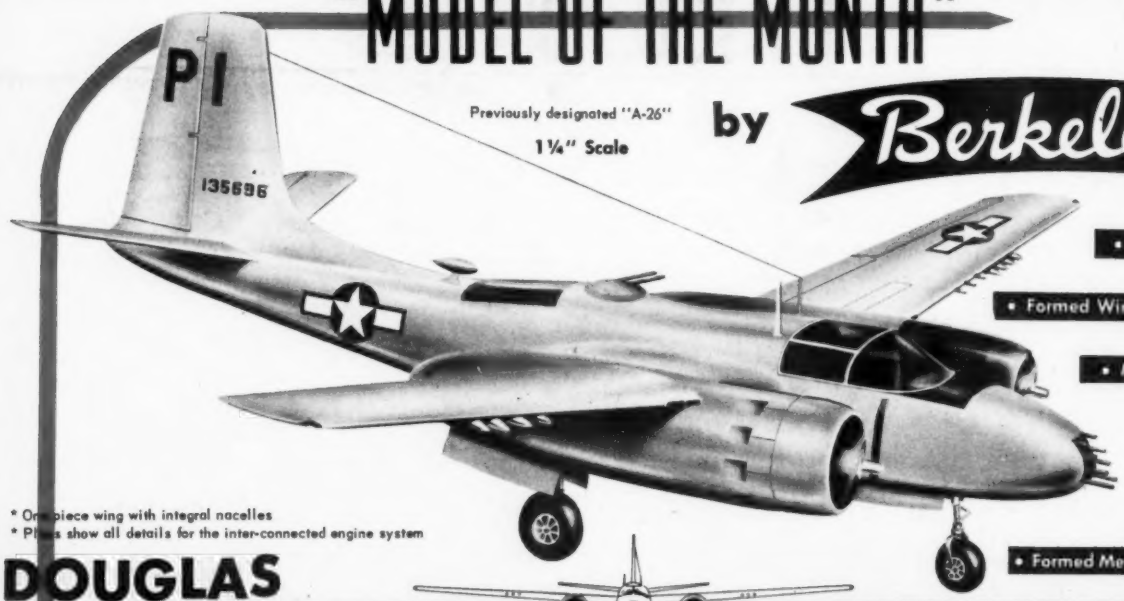
If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA., West Hempstead, N.Y. Please include 25¢ packing & postage.

"MODEL OF THE MONTH"

Previously designated "A-26"

1¼" Scale

by Berkeley

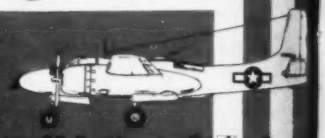


- Die cut Cellu
- Formed Wire Landing Ge
- Metal Hardwa
- Formed Metal Engine Cow

* One piece wing with integral nacelles
* Plans show all details for the inter-connected engine system

DOUGLAS B-26 "INVADER"

Radio Control



For .15 to .25 Engines—Radio Con

- Die cut balsa and plywood par

For .25 to .65 Engines— Contro

Featuring -

Balanced Thrust Inter-connected Engines

This linkage adjusts the exhaust throttle of the opposite engine. Loss of R.P.M. of one engine, will adjust the thrust of the other engine accordingly. As one engine cuts out, the other engine is stopped also.

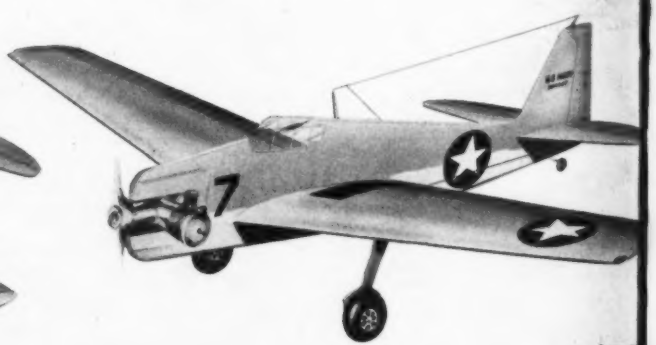
Controliner

87½" Wingspan— Wing Area—86

- Authentic Multi-color Dec

$16.95

A beautifully detailed scale replica of the famous fighter-bomber. Flown extensi in combat in Korea, the "B-26" makes a fine model. Ideal for controline flying designed for radio control flying with balanced thrust inter-connected engines. T is a sensational airplane, one which you will derive great satisfaction from assem as well as flying.



REPUBLIC

P-47 "THUNDERBOLT"

$2.95 Controliner

For .09 Engines — 20" Wingspan ½" Scale

GRUMMAN

F6F "HELLCAT"

$2.9

For .09 Engines— 20" Wingspan ½" Sc

PROFILE SCALE - READY TO ASSEMBLE

- Rubber Wheels
- Full Color Military Decals
- Complete Building Instructions

Especially designed for the new .09 engines. This size engine with twice the power of the "1/2 A" engines gives more thrilling flight, and better control response. Both designs are capable of flying the full stunt pattern. Assembly is very easy - all parts pre-fabricated.

- Die-Cut Balsa and Plywood
- Complete Metal Hardware
- New Type Landing Gear

Since 1933—Leader in Creative Model

BERKELEY MODELS INC.

WEST HEMPSTEAD, NEW YORK, U.S.A.

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA., West Hempstead, N.Y. Please include 25¢ packing & postage.

the FOX Anniversary model .....

35

1949 / 1959

Since January 1949, when only 50 Fox 35's were produced, there has been a constantly increasing demand for this model until today every informed modeler knows of its reputation and performance. Hundreds of nationally-known modelers have several Fox 35's in their "stables".

There have been many changes since 1949 with yearly improvements to give it even greater performance.

Although many of the improvements are not readily apparent they all add up to greater performance and longer life and you may be sure, *the Fox Anniversary Model 35 is the finest Fox ever built.*

- Changed from a machine-turned crankpin to a ground pin.
- Changed from a permanent mold casting to the die casting method for more uniform castings.
- Changed from taper thrust to flange washer for positive prop drive.
- Improved the grade of steel in the crankshaft.
- Added bosses underneath cylinder head hold-down screws for less cylinder distortion.
- Developed a superior cylinder finish.
- Rear cover changed from two to three lug design for greater durability.
- Changed from 4 head hold-down screws to six.

See the New 1959 Fox Anniversary Model at Your Favorite Hobby Shop

SMART CHAMPIONS CHOOSE FOX

FOX MANUFACTURING CO., INC.

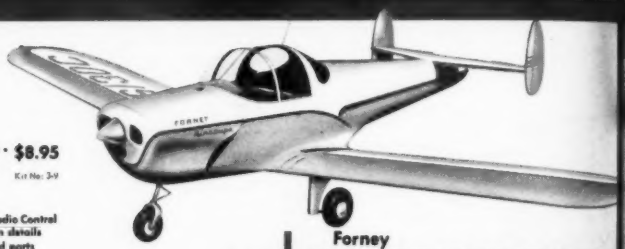
Designers and Manufacturers of the World's Finest Model Airplane Motors

5305 TOWSON AVENUE, FORT SMITH, ARKANSAS

Berkeley's

RADIO CONTROL FLYING SCALE

For Radio Control — Free-Flight — Controline



1-1/2" Scale **PIPER** 54" Wingspan —

"COMANCHE"

Newest King Size Model... $8.95

For .065 to .15 Engines — Radio Control
For .09 to .19 Engines — Controline

Kit No: 3-9

Piper Aircraft's latest four-place personal airplane is an ideal design for low-wing radio control and controline flying. The kit model is ruggedly designed and adaptable to a number of model engines. Easy to build and fly too!

- Die cut Celluloid Windshield
- Formed Landing Gear
- Hardware
- Tapered Balsa Trailing Edges
- Full Size Plans with both Radio Control and Controline installation details
- Die cut balsa and plywood parts
- Silkspan Covering

"BUSTER"

For Radio Control Pylon Racing • Controline Flying

for .15 to .35 Engines — 3" Scale — 48" Wingspan — **$9.95**

First scale model kit for Radio-Control Pylon Racing, - also for Controline flying. 1/4 size of real 16' wingspan "Buster" racer. Kit No: 3-8

"WACO CABIN"

1½" Scale —52" Wingspan For .14 to .49 Engines

The 1½" scale "Waco" spans 52". Weight with all radio equipment installed is 4½ lbs. 630 sq. inches wing area. Model is designed for multiple control through compound escapement systems. In flight it is very stable and easily controlled with rudder only type installations. Rudder, elevators, motor and steerable tailwheel may be actuated. Radio equipment is removable as a unit for convenience.

Kit No: 3-6

$9.95

less wheels & wheelpant material

Forney

"AIRCOUPE"

For Radio Control— Free-Flight— Controline

Kit No: 3-7 1½" Scale .074 to .29 Engines

$7.95

The kit is very complete in true Berkeley tradition with prefabricated wood parts, silkspan, landing gear and hardware, plus the super-detailed plans and full-colored authentic decals found only in Berkeley Kits.

• Operating Wing Flaps
radio or controline actuated

$8.95

Kit No. 3-6

CESSNA "172"

BIG 1½" SCALE — 54" WINGSPAN FOR .09 to .19 ENGINES

• Adjustable Ailerons
for manually setting trim

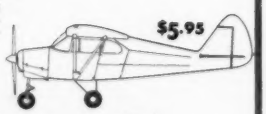
Here is the latest scale "Cessna" that is a "natural" for radio control. The big proto ship takes-off and lands with "hands-off" control. The model handles just as easy! It's a model builders dream ship!

Piper "TRI-PACER"

Four place cabin monoplane with interconnected ailerons and rudder. Powered by 135 or 150 hp. Lycoming Engine. Maximum speed 139 m.p.h.

1½" = 1' Scale—44" Wingspan

For .065 to .099 Engines—Radio Control
.035 to .075 Engines—Free-Flight
.075 to .15 Engines—Controline



$5.95

AERONCA "C-3"

1½" Scale—54" Wingspan

For .074 to .15 Engines Kit No: 3-5 **$5**

Available as a 36" span for "½A" Free-Flight, Control as a 34" span for Radio Control, Free-Flight, Control

For .049 to .075 Engines—Radio C
.035 to .075 Engines—Free-Fl
.074 to .15 Engines—Co

De Havilland "BEAVER"

1" = 1' Scale—48" Wingspan

• Formed Metal Ring Cow

FREE-FLIGHT: Contest performance possible. Easy to a and an excellent design for less experienced scale fly

RADIO CONTROL: Recommended for precision flying, as tra two-speed work, shooting landings, etc. Realistic perform

CONTROLINE: Long moment arm provides full range of co on take-offs, landings, and throughout flight. Very easy to

Radio Control — Free-Flight — PAA-Load

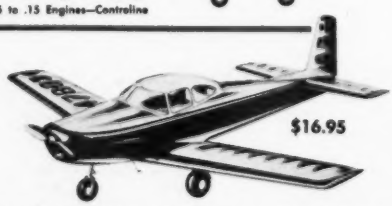
"PIPER CUB J-3"

For .15 to .35 Engines—71" Span—2" Scale

Weight: 4½ lbs. — 700 Sq. in. Wing Area — 14.2 oz. Loading

The "Piper Cub J-3" needs no introduction. Most famous of all light aircraft, it's a natural for R.C. or Free-Flight flying. The six foot span permits the extra R.C. installation that you dream about. This is a rugged, detailed, flight proven design. Full-Size Plan with R.C. installations. Authentic Decals, etc.

$10.95



$16.95

NAVION "Super" 260

- Full Size Plans with Radio Control & Controline Installation Details
- Molded and Embossed Celluloid Canopy
- Vacuum Formed Polystyrene Cowl

2" Scale — 68" Wingspan
6½ Pounds with R.C.
720 sq. in. Wing Area

.29 to .35 Engines Radio Control
.23 to .29 Engines Free-Flight
.29 to .65 Engines Controline

This beautiful scale replica of the famous "Navion" is a fast, rugged and truly different R.C. or Free Flight design, easily adapted to Controline Flying. Thrill to its flashing performance and smooth response. As a free-flight, it will give you experience and confidence in low wing designs. Big, roomy, and well engineered, it will set the pace whenever it's flown. Easy to build!

$14.95

CESSNA "170"

For Radio Control — Free-Flight — PAA-Lo
For .25 to .35 Engines — 72" Span — 2" Sc

Controlling your "Cessna 170" by Radio is a thrill you will forget! Perfect in scale, rugged, stable in all attitudes, re sponsive in control, with good wind penetration qualities gear location is ideal for extended take-off runs. The than average size makes it easier to control in windy we

Army Liaison YL-24 "HELIOPLANE"

For .049 to .14 Engines — 39" Wingspan — 1" Scale

With a large prop and full span flaps, the full-scale "Helioplane" can take-off with full load in 300 feet, maintain level flight at 30 m.p.h. Top speed is 150

$4.95

Since 1933—Leader in Creative Model Kits

BERKELEY MODELS INC.

WEST HEMPSTEAD, NEW YORK, U.S.A.